

# THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE

VOL. 81.

NEW YORK, SATURDAY, AUGUST 30, 1902.

No. 9.

## ORIGINAL ARTICLES.

### THE COMPLICATIONS AND SEQUELÆ OF ACUTE CROUPOUS PNEUMONIA.

BY H. A. HARE, M.D.,  
OF PHILADELPHIA;

PROFESSOR OF THERAPEUTICS IN THE JEFFERSON MEDICAL COLLEGE  
PHYSICIAN TO THE JEFFERSON MEDICAL COLLEGE HOSPITAL;  
AND

ARTHUR DARE, M.D.,  
CLINICAL ASSISTANT, OUTPATIENT DEPARTMENT, JEFFERSON MEDICAL COLLEGE HOSPITAL.

(Continued from page 357.)

Fisher<sup>80</sup> does not regard pulmonary abscess as so rare a complication as is generally considered. In his experience he has seen five cases. In one case the whole lobe had broken down into pus. The cases examined bacteriologically had proved to be mixed infections. The pneumococcus was associated with the *bacillus coli* or with streptococci.

A case terminating fatally upon the 11th day of the disease is reported by Curnow,<sup>80</sup> in which an abscess was discovered upon the ninth day. The patient, a male, aged 37 years, who had been addicted to alcoholic abuse, had his pneumonia ushered in with pain in the back and dyspnea. On the ninth day the angle of scapula was selected for aspiration puncture, and 24 ounces of fluid, thin, puriform, and odorless, were removed. Microscopically this exudate exhibited pus cells, streptococci, staphylococci, and a few pneumococci. The thermometer registered 102° F., a fall of one degree, which immediately followed aspiration. One day later pronounced coma, with unchanged physical signs, was noted. The pleura was incised in the mid-axillary line, in the eighth interspace, and 24 ounces of pus were removed, and the cavity drained without anesthesia. On the 11th day a temperature of 107.6° F. preceded the fatal issue. The autopsy showed the lower left lobe to be the seat of congestion and bronchitis with a slight and recently developed pleurisy. Upon the left side the pleura was adherent in the axilla and posteriorly over the lower tube. The upper half of the lower lobe was pneumonic. Posteriorly and two inches from the apex, there was found an abscess cavity, one by-two inches, communicating with the pleura, through a large opening, but there was no communication with a large bronchus. There was observed a recent pericarditis with dilation of the cardiac cavities. The liver was fatty and enlarged. The spleen enlarged and congested, and the kidneys fibroid.

In a case under the observation of one of us (Hare) a young woman, after nursing a case of acute croupous pneumonia, was seized with a violent chill, considerable fever, and rapidly developed croupous pneumonia, involving the middle and the lower lobe of the right side al-

most entirely. There was a good deal of pain in the chest due to associated pleuritis. After passing through a severe attack of acute pneumonia, the temperature failed to return to normal, a pseudo-crisis taking place on the ninth day. After this, the temperature gradually developed the septic type, although at no time was it very high. Sweats and chills developed. There was a good deal of emaciation, persistent cough which prevented sleep, and a good deal of pain. Thirty days after the beginning of the attack of pneumonia, during a violent spell of coughing, the patient suddenly brought up considerably over a teacupful of pus which was not offensive, but which came so freely as to almost cause suffocation. Prior to this time the area in the posterior portion of the lung had been supposed to be due to delayed resolution, although an abscess was suspected. Empyema had been excluded. In view of the persistent expectoration of large quantities of pus, accompanied by attacks of strangulation due to the freedom of its flow, it was finally decided because of the associated symptoms of severe sepsis that the abscess should be opened and drained through the chest wall. Before this was attempted, the patient was propped up in bed and the fluoroscope employed to determine the exact location of the abscess. The darkened area in which the abscess existed could be plainly seen when looking from behind forward with the fluoroscope, and after careful consultation with Prof. J. Chalmers DaCosta, it was decided to operate. This was done without an anesthetic as we feared that if an anesthetic were administered, strangulation might take place. The abscess cavity could not be reached through the chest wall, and a drainage tube was inserted in the lung in the hope that the pus would burrow in the direction of least resistance and escape through it. This, however, did not take place. Three days later a second abscess, containing about a half pint of pus, suddenly ruptured during an attack of coughing, and again nearly produced death by suffocation. The septic symptoms now moderated, but the patient became exceedingly feeble because of the profuse suppuration, the septic absorption, the incessant cough which prevented sleep and the fact that the constant presence of pus in the mouth completely destroyed all taste for food. Notwithstanding all these difficulties, the patient's temperature became normal on the 73d day of her illness, and remained so until her discharge on the 103d day. She is now entirely recovered, is in superb health and has been able to discharge all her duties as a trained nurse in a hospital ward for some months.

Cimbali<sup>81</sup> accounts for the *delay of resolution* in croupous pneumonia by the fact that it occurs

most often in the debilitated, especially so in sufferers from malarial cachexia. He observes that this phenomenon is most frequently observed in those cases where an intensity of the infection is present, as a result of cardiac asthenia. He notes the fact that following the crisis, there is no change in the physical signs, the sputum is characteristic of the disease and that evening exacerbations of temperature are the undeviating rule. Cimbali further states that in these cases complete recovery was always the outcome in from four to six weeks after the crisis, and that he has never seen a relapse. Resolution antedated the patient's general improvement and he urges that treatment should include especially, what he thinks to be most imperative,—all those measures tending to increase the resisting power of the individual.

We wish to emphasize the fact that not rarely what has been thought to be an acute croupous pneumonia proves to be acute pneumonic phthisis. Sometimes, too, what is thought to be a local induration or delayed resolution proves to be in reality a pleural effusion, and Fraenkel<sup>82</sup> has reported the following case of induration with an interesting and valuable statement as to the post-mortem findings.

A male patient, age forty-nine years, had previously been a sufferer from a left-sided hemiplegia. Stridulous respiration accompanied the affection. Seized with an attack of croupous pneumonia, the temperature curve followed the remittent type with evening exacerbations. Marked dyspnea proved a distressing symptom. Physical examination revealed dulness over the left half of the chest. Anteriorly and posteriorly the examining fingers encountered a board-like resistance. There was absence of the respiratory murmur and of vocal resonance. The left radial pulse was smaller than the right. For the relief of the dyspnea, puncture was resorted to and almost two and one-half pints of a sanguinous fluid escaped. Dyspnea, however, was not relieved. Slight systolic pulsation was diagnosed upon the anterior aspect of the left chest. Postmortem examination showed a voluminous lung, the upper portion of which was adherent to the chest wall. The appearance of carnification was presented upon section, the parenchyma being solid, tough and dense, and presenting numerous yellow foci of fatty degeneration. Above the bifurcation, the trachea showed erosion, brought about by an aneurism the size of a man's fist, situated in the aortic arch and involving as well a considerable portion of the descending aorta.

Tuttle<sup>83</sup> describes a curious case in which the patient, a male aged forty years, presented no change in the physical signs, and suffered no symptoms, there being an absence of cough and expectoration. There was no fluctuation of temperature, and general improvement, with an increase of bodily weight was noted. Several times aspiration was resorted to, with negative results. The entire lung was solidified. This

condition persisted for four months; the tissue then began to break down with general destruction and suppuration. This process confined itself to the lung first affected. There was no single abscess cavity.

*Hydropneumothorax*, as a complication of pneumonia of the croupous type, sometimes comes on. A fatal case in a man of twenty-two years is reported by Anthony. The attack was one of pleuropneumonia. Tubular breathing with pneumococci in the sputum, were two diagnostic points of importance. Amphoric breathing was noted on the fifth day. Percussion dulness, with absence of respiratory sounds, was appreciable by the seventh day, throughout the lower half of the thorax. In the central regions, amphoric breathing was noted on auscultation. The succussion splash was also in evidence. Displacement of the heart, to the left, was noted on the ninth day, the dyspnea, necessitating thoracentesis, 1100 grams of sero-fibrinous fluid, containing pneumococci in pure culture, were evacuated. A subsequent empyema was treated by aspiration and resection of the ribs. Death occurred three months after the onset of the disease.

A man of twenty-four years was under the care of Edwards<sup>84</sup> who on the ninth day developed a pneumothorax, located over the upper anterior segment of the chest. It was localized by the pulmonary consolidation, and thus did not become generalized. Possibly it was due to the softening and rupture of a hemorrhagic infarct. There was no effusion.

*Disturbances of the nervous system* over and above the signs of meningitis, or true meningeal inflammation, as already considered, are by no means as rare as many persons believe. Sometimes these conditions arise from emboli, sometimes from septic foci and sometimes from aortic inflammatory processes.

Paralysis in croupous pneumonia was recognized by Huxham; later it was described by Charcot, Lepine and Vulpian as *hemiplegie pneumonique* as a rather frequent complication of croupous pneumonia. It may occur early in the course of the disease, or may not develop until the period of convalescence. Such a paralysis has been observed in children as early as the eighteenth month, and as late in life as the seventy-sixth year. Pierre Bouloche<sup>85</sup> has collected 56 cases resulting from croupous pneumonia. In this analysis the type of paralysis was found to be nearly always hemiplegic. In advanced years death nearly always ensued upon this complication, while in the young the mortality was very much lower, recovery being the rule. In one case occurring at the age of fifty-eight, hemiplegia with aphasia developed during the course of the disease, but ended in recovery. Strause<sup>86</sup> gives an excellent description of hemiplegia in old age in a patient of seventy-six years with right-sided pneumonia. On the sixth day dyspnea was urgent, and complete left-handed hemiplegia occurred followed by death the same day.



At the autopsy the right lobe was found consolidated and in a condition of gray hepatization. Vegetations were found upon the mitral valve, and atheromatous plaques in the aorta. The right hemisphere showed a patch of softening seven millimetres in diameter which extended to the neighborhood of the lenticular nucleus. The vessels in the neighborhood of the softening were obliterated.

In some instances the paralysis is monoplegic and this is well illustrated by a case described by Bouloche in a patient thirty-two years of age, who from the onset of the disease was delirious and who presented a typical right-sided croupous pneumonia. Paralysis of the right arm and right side of the face was discovered upon the sixth day of the disease. Movements of the right leg were entirely retained. There was aphasia but no loss of consciousness, neither was there any disturbance of sensibility; 12 days later the fever had subsided, the aphasia had diminished considerably, and the muscles of the face were less drawn. Sensation in the pharynx returned and a day later the aphasia disappeared. The facial paralysis passed off; the relative strength of the two arms showed only a decrease of 10° in the affected side, and at the expiration of 20 days the monoplegia had entirely disappeared.

Aufrecht<sup>67</sup> reports a case of complete hemiplegia occurring in a child two and a half years old, in which the paralysis entirely disappeared in a few hours. The paralysis was preceded by high temperature, nausea and vomiting. On the following day slight convulsions followed by complete paralysis of the left side of the body occurred, but within a few hours the paralysis disappeared; in one week convalescence was fully established, and the patient rapidly recovered.

Lanth<sup>68</sup> records the following case as illustrating how cerebral lesions may complicate croupous pneumonia: A man, sixty-two years of age, was taken ill with a chill and pain in the right side. Three days later a diagnosis was made of left-sided pneumonia. There was slight albuminuria; high fever developed, and the right lung became involved. On the 10th day improvement was decided, but two days later an active delirium and a complete right-sided hemiplegia with aphasia developed. Autopsy two days later revealed gray hepatization of the inferior lobe of the left lung and in the upper part of the lobe an abscess. There was also a lesion of the aortic valve. The meninges were infiltrated throughout. On the left side and from the fissure of Sylvius there was a purulent exudate, which had caused obliteration of the left Sylvian artery. There was also considerable softening of the brain substance in this area. Bacteriological examination showed the pneumococcus not only in the meningeal exudate but in the vegetations of the endocardium.

Softening of the brain has occurred in other cases, in one, reported by Suckling, arising from thrombosis of the basilar artery, and from throm-

bosis in the circle of Willis; with plugging of the superficial arteries of the left hemisphere. While these lesions have been found as the causative agents in producing hemiplegia, there are also cases on record in which the autopsy has been negative. In other words hemiplegia with lesions and hemiplegia without lesions occur. In the former case hemiplegia results from either meningitis or softening and is due to thrombosis or embolism. It is possible for hemiplegia to develop in which all the characteristics of pneumonia appear without there being any relationship between the two conditions. It is interesting to note that other cases are on record in which aphasia with hemiplegia has occurred in the course of croupous pneumonia, in which a difference of temperature has existed in the two sides of the body. Such a case is reported by Carnien,<sup>69</sup> and still another case is recorded in which there was right-sided pneumonia and left-sided hemiplegia with loss of pulse in the right radial. Evidently in this instance of thrombosis or embolism the obstruction not only involved the arteries of the brain but also of the arm.

The fact that these marked nervous manifestations sometimes come on early in an attack of croupous pneumonia, emphasizes the importance of examining the chest in all cases of paralysis, not only because pneumonia is competent to produce hemiplegia or other localized palsy, but also because these conditions are quite competent to produce pulmonary lesions. In other words, pulmonary lesions may be the cause of hemiplegia, and hemiplegia may be the cause of croupous pneumonia.

The paralysis complicating croupous pneumonia in a certain number of instances are like that of diphtheria of the toxic type.

Jaccoud<sup>70</sup> describes a case of hemiplegia occurring in a male fifty years of age. The paralysis manifested itself upon the 13th day. The whole left side of the body was paralyzed. There was incontinence of urine and feces, and tactile sensation was much diminished. Before death, which occurred on the 15th day, contracted pupils, delirium and vomiting were noted. The autopsy revealed the presence of three liters of non-odorous pus in the left pleural cavity; the lung was in the stage of red hepatization beginning gray in spots. The brain was edematous, and patches of softening covered with pus were found near the fissure of Sylvius and the base of the cerebellum.

In two cases of hemiplegia reported by Ransom,<sup>71</sup> one was caused by a small patch of softening in the crus, and in the other case the brain was literally riddled with abscesses. In Wublad's case<sup>72</sup> the hemiplegia manifested itself at the onset by apoplectic symptoms followed by complete right-sided paralysis (including the face). The pneumonia pursued an otherwise typical course and ended in recovery. At the end of three months the paralysis had completely disappeared.

Aufrecht<sup>73</sup> describes two cases of paralysis occurring in pneumonia; in the first case a child

twenty-one months old, became comatose upon the third day of the disease and without convulsions or vomiting developed paralysis of the left arm and leg upon the eighth day. The following day crisis, marked by profuse sweating, occurred. The child's mental condition improved, but the paralysis persisted without signs of improvement for three days. The hand was the first to improve and then the leg, and in two weeks from the day of crisis recovery was complete. The second case described was a child twenty-seven months old in which the paralysis was preceded by fever, vomiting, and convulsions. Paralysis of the entire left side of the body appeared with the onset, and soon disappeared, but a peculiar nodding of the head that accompanied the paralysis continued. Cough did not appear until the sixth day and local physical signs not until the seventh. Consolidation was confined to the left upper lobe. Recovery was complete.

Bozzio<sup>74</sup> mentions the case of a man sixty-six years old with a tuberculous, but otherwise favorable history, which is interesting in spite of the existence of tuberculous infection by reason of the pathologic study. The patient had recovered from an attack of pleurisy with effusion on the right side, and a dry pleurisy on the left. Shortly afterward a fatal pneumonia developed involving the left lung. On the third day vomiting, deviation of the eyes, difficulty of speech, and slight rigidity of the neck developed; continuous subdelirium persisted until the eighth day when paralysis of the right arm and leg occurred. Symptoms of paralysis of the seventh nerve were present. The reflexes were completely abolished, but sensation was normal. The autopsy revealed double tuberculous pleurisy and recent hepatization of the left lung. There was slight cerebral edema but no meningitis, thrombosis, embolism or cerebral hemorrhage. Coagula were found in the heart, a small renal infarct and thrombosis of some of the small pulmonary vessels were discovered.

Aldrich<sup>75</sup> has recently reported a case of paralysis due to embolism of one of the right lenticulo-optic arteries, his patient, a male, eleven years old, with a favorable family and previous history, during the course of an attack of croupous pneumonia, in which high temperature, delirium and hacking unproductive cough were prominent symptoms, developed upon the ninth day jerky choreic movements which continued until paralysis of the left arm and leg was complete. The head was turned to the right with a conjugate deviation of the eyes to the same side. The pupils were widely dilated and reacted slightly and slowly to light. The facial muscles and muscles of deglutition and phonation were unimpaired. The right knee jerk was absent; the left questionable or absent; the skin reflexes and sensation normal; Babinski's sign was present in the left foot. The heart sounds were irregular and indications of failure and dilatation of the right heart were present. Death occurred upon

the 14th day. At the autopsy the liver was found slightly enlarged, the mucosa of the intestines was irritated but no typhoidal ulceration was discovered. The right lung was almost completely consolidated but resolution was advancing; the left lung was engorged but contained no pneumonic deposits or pleural adhesions. The cerebral meninges were slightly injected; an area of softening was found occupying the region of the posterior half of the right lenticular nuclei and the hinder part of the posterior limb of the internal capsule, involving slightly the *thalamus opticus*. Complete embolism of one of the middle lenticulo-optic arteries was discovered; no other spots of softening were found.

Preble describes a case of monoplegia occurring in a child two and a half years old, in which complete paralysis of the left arm continued for three days and then disappeared. No other paralyzes were noted. The development of the pneumonia was preceded by the formation of a small patch half an inch in diameter in the throat, and some submaxillary adenitis. No culture was made of the exudate but the membrane disappeared promptly after the administration of antitoxin, and did not form again. The pneumonic consolidation occupied the right upper lobe. In this case the possibility of toxic neuritis due to diphtheria must be considered.

Batten<sup>76</sup> relates a remarkable case of abscess of the right frontal lobe as large as a small orange, but which did not come to the surface, but burst into the right ventricle. The pus obtained from the contents of the cavity showed staphylococci and large numbers of an organism morphologically indistinguishable from pneumococci.

From the clinical symptoms there was a suspicion of empyema on the right side, but there were no symptoms or signs of cerebral involvement until a few days before death, when the patient became confused and refused to take food. During the next few days there alternated a semi-comatose condition and almost complete clearness of brain function. His right pupil was contracted and there was decided loss of plantar sensibility on the left side. There was optic neuritis which was more decided on the right side. The postmortem, which was limited by the family to the opening of the calvarium, showed great fulness of the meningeal veins, but no meningitis, and the existence of the above described abscess.

Aufrecht<sup>77</sup> gives a graphic account of a case in which delirium, retraction of the head and confusion of mind were the early symptoms, disappearing after the lapse of a few days. An empyema developed which was evacuated and drained. Improvement in the condition followed and the mind cleared. At the end of ten weeks the following grave symptoms again developed: A high temperature, severe headache, marked mental confusion occurred, and at the expiration of twenty-four hours the patient died. At the autopsy purulent meningitis and ependymitis



were found in association with an old abscess, replacing exactly the left caudate nucleus. This observer is rather impressed with the idea that the period of delirium and retraction marked the period of abscess formation which became latent and also, by extension to the lateral ventricles, was subsequently instrumental in developing the meningitis.

*Transitory aphasia* is a complication reported by Chantemesse.<sup>78</sup> This observer has found that aphasia usually occurs about the second or third day of the disease, that it is ordinarily preceded by headache and giddiness even to the verge of syncope; in some cases numbness of a sensation of pricking in the right side of the face and right arm are experienced; in other cases it may set in abruptly without loss of consciousness or become manifest after a typical apoplectic seizure. The characteristics of the speech impairment do not differ from those dependent upon an organic lesion of the third left frontal convolution upon the left side of the brain. The paralysis may involve the entire right side of the body but usually only the inferior portion of the right side of the face, the right half of the tongue and the right superior extremity are affected; as a rule sensation and reflexes are not altered. In pronounced cases the paralyzed parts may be the seat of increased redness and edema, more or less circumscribed and increased by heat. The phenomena persist commonly for from a few hours to a few days and seem in no way to influence the primary disease.

It is doubtful whether the clinical picture and pathology of transitory aphasia differs in any particular from many of the cases already studied and described as hemiplegic. They probably represent the cases in which no lesion is found post-mortem.

*Neuritis* occurring chiefly as a sequel to croupous pneumonia has been described by several observers. These cases resemble those described by Bouloche as paralysis with muscular atrophy coming on during the period of convalescence.

Leszynsky<sup>79</sup> records a case of neuritis of the brachial plexus occurring in a male thirty-six years old, presenting no history of traumatism, exposure to cold, alcoholism, rheumatism, or syphilis that during the period of convalescence from croupous pneumonia developed neuritis involving the brachial plexus on both sides. Five months later there was a pronounced and typical paralysis of the left *serratus magnus* and also some atrophy of the deltoid and supra-spinatus. Upon the right side there was well marked atrophy of the deltoid with absolute anesthesia in the cutaneous distribution of the circumflex nerve and complete loss of faradic irritability, also atrophy of the supra-spinatus.

Krafft-Ebing<sup>80</sup> describes a case of bilateral neuritis occurring in a male of thirty-seven years, with a negative history of alcoholism or specific infection, that followed an attack of croupous pneumonia. He suddenly lost power in both up-

per extremities; there was anesthesia down to the elbows, and hyperesthesia to the fingers. The paralysis persisted but anesthesia disappeared in twelve days. There had also been transitory dyspnea, dysphagia and impairment of hearing, together with lancinating pains at the nape of the neck, on the back and in the distribution of the ulnar nerve. There was progressive wasting of the muscles about the shoulder, with degenerative electric reactions and fibrillary muscular contractions. The reflexes and electric irritability were enfeebled. Subacute anterior polio-myelitis was excluded by the relatively favorable course of the symptoms and absence of vasomotor disturbances.

Kelynack<sup>81</sup> observed in a man and his wife suffering from croupous pneumonia, peculiar nervous manifestations in both; in the woman a tetanoid condition, continuing for several days, developed, while in the man there were choreiform movements with severe myalgia, distinct arthritis of the ankle, and intense hyperesthesia of the lower extremities. Tetany is mentioned by Page<sup>82</sup> as having occurred two weeks subsequent to an attack of croupous pneumonia in a girl two years of age, ill-nourished and rachitic. The chest presented a slight rachitic rosary, and she was chicken-breasted. Hyperpyrexia was present from the time of admission to the hospital and rose in spite of ice baths to 107° F. The apex and body of the left lung and the apex of the right lung were consolidated. There was wild delirium and at times tetanic rigidity and convulsive twitchings throughout the course of the disease which ended by crisis on the sixth day. At this time several spots upon the body and extremities resembling a burn were noted, probably due to constant jactitations. Convalescence was rapid but at the end of two weeks a stiffness of the extremities developed which grew more pronounced and was diagnosed by Griffith as tetany. The forearms were flexed upon the arms and the wrists upon the forearms; the little fingers were strongly extended, while the middle and ring fingers were strongly flexed; the index fingers and thumbs were in a partly flexed position and always stiff. The legs were slightly flexed on the thighs and the feet were in a position of *talipes equino-varus*. The jaws were slightly stiffened, showing their unnatural movements during mastication or crying. Sensation was good and the reflexes all exaggerated. Improvement was gradual.

Eason,<sup>83</sup> in a study of the relation between *croupous pneumonia and the disturbances of the sympathetic nervous system*, notes an inequality of the pupils, proptosis of the eyeball, flushing, pallor, and the cerebral symptoms so often associated with apical pneumonias. The inequality of the pupils appears to depend upon unusual dilatation of one pupil; the absence or presence of the inequality, apparently depending upon the part of the lung affected. Thus it occurs in apical, but evidently not in basal pneumonia. Flushing

of the cheek is often found on the side of the affected lung.

*Intense delirium* is especially prone to occur in alcoholics, as we all know.

Three cases of mania are reported by Campbell<sup>84</sup> in youths of fifteen, sixteen and twenty years. In one of the cases, crisis upon the seventh day was followed by a wild delirium, acceleration of the pulse, a cold, clammy skin, and pallor of the face. In a few hours death occurred; the lungs had almost completely cleared. In the second case wild delirium seized the patient at the end of the fifth day. There were present rational intervals of brief duration. In two days the delirium subsided, the patient recovering. In the third case the patient showed a temperature elevation to 105° F. Crisis occurred upon the sixth day. Twenty-four hours later delirium was a marked symptom and the following symptoms were presented: Subnormal temperature, cold, clammy skin, exhaustion and death. The patient lived but thirty hours from the time of the appearance of the maniacal outbreak.

One of us (Hare) has recently seen in consultation with Dr. Fee of Lawrenceville an interesting case of a lad of eighteen years, who at the time of crisis became violently insane, but speedily recovered.

Until Weichselbaum<sup>85</sup> isolated the pneumococcus from the pus aspirated from the synovial sac of joints involved during the course of croupous pneumonia, the occurrence of arthritis was considered a coincidence, but since 1888 arthritis and osteo-arthritis have been recognized as a pneumococcus infection.

Leroux<sup>86</sup> collected some 28 cases and later Cave<sup>87</sup> analyzed 31 cases reported almost entirely by Continental observers, completing a study of this complication up to the date of his paper.

The conclusions arrived at were that the joint affections were always continuous, with none of the fugitive characteristics of true rheumatism. In the 31 cases, 23 died and eight recovered; 28 cases were immediately associated with pneumonia. The symptoms of arthritis usually followed the onset of pneumonia at intervals varying from a few days to a fortnight. In two instances observed in children by Bouloche and Oliva, the arthritis is said to have preceded the pneumonia (in Bouloche's case) three days. (The latent development of the physical signs in children should not be forgotten in fixing the advent of complications). In the latter case, that reported by Oliva, arthritis developed seven days previous to the appearance of the usual signs of pneumonia. Cave regards this case as doubtful pneumococcus arthritis, occurring as a complication of pneumonia as the pneumococcus was not demonstrated in the fluid of the joint. These two cases are the only instances in which this complication occurred in individuals under thirty years of age. Three of the cases collected by Cave occurred independently of pneumonia, and a fourth reported by Oliva is doubtful.

The affection is essentially one of adult and advanced life, far commoner in males than in females. In 29 cases the age incidence was as follows: Before the 10th year, two cases; 10 to 20 years, no cases; 20 to 30 years, one case; from 30 to 40 years, five cases; 40 to 50 years, nine cases; 50 to 60 years, six cases; 60 to 70 years, four cases; 70 to 80 years, two cases.

Traumatism, rheumatism, lead cachexia, arthritis following enteric fever, and the deposit of uratic crystals in the cartilage are given as predisposing causes, a history of damage to the joint being present in 10 of the 30 cases. The arthritis is commoner in the upper extremity than in the lower; in 14 cases the upper extremity was alone affected; in 10 the lower extremity alone; in seven there were multiple lesions affecting both upper and lower limbs. In 19 cases inflammation was confined to a single joint; in the remainder two or more joints were involved. The larger joints, with the exception of the hip, are more prone to infection.

In all of the cases included in Cave's collection, the pneumococcus was demonstrated in the fluid in the joints with the exception of Oliva's case.

In the cases in which arthritis occurs there is frequently a widespread infection of the system with the micro-organism. Cave found malignant endocarditis in six cases, pleurisy and empyema in five; pericarditis in two; nephritis in three; meningitis in six, and peritonitis in one. In mild cases, or those of short duration, the synovial membrane alone may be affected with loss of polish and injection of the fringes. But in many cases the cartilage is partially or completely eroded and the surface of the bone laid bare.

In the case reported by Picqué and Veillou<sup>88</sup> pus tracked upwards from the knee six inches along the femoral artery, and downwards between the muscles of the calf. The result in many cases is adhesions or complete ankylosis. In the milder cases the function of the joint may be completely restored.

Infection of the articular structures probably takes place through the blood. From a weakening of the natural barriers, the result of injury or disease, the germs naturally tend to settle and develop under these conditions.

Raw<sup>89</sup> has added to this collection seven cases of arthritis occurring in the course of croupous pneumonia, six of which were suppurative and one serous; these cases represent the entire number of instances of this complication occurring in 817 cases of croupous pneumonia, a percentage of 1 per cent. Curiously enough his cases correspond closely with those recorded by Continental physicians, in that six were males and one a female. In all seven cases the pneumonia was right-sided, and the joints affected were all on the right side; Raw regards this as only a coincidence, although the fact is striking; of these seven cases four recovered and three died. This observer has noticed a slight redness and pain in the shoulder joint of the side affected, which sub-



sided with the crisis in some cases of croupous pneumonia.

The following cases of arthritis and osteoarthritis as complications of croupous pneumonia are all presented by French physicians and were all discussed in the French journals:

In a table of 11 cases, Vogelius<sup>90</sup> has reported that in two of these the pneumococcus was found as the cause of arthritis. In the majority of cases this complication became apparent as early as the fifteenth day after the onset. In one case the arthritis appeared upon the 11th day. In six cases a purulent exudate was found. In two cases it was sero-purulent, and one sero-fibrinous. The exudate in ten of the cases is not referred to. Considerable destruction of the joint was observed in four cases, due either to peri-arthritis or to ulceration of the articular cartilages, with denudation of the bone.

In a man aged fifty-six, Rendu<sup>91</sup> observed a synovitis of the left sterno-clavicular articulation, intensified by a serous synovitis of both knees. The affected parts were aspirated, incised, drained, and immobilized. Microscopical examination of the exudate presented pneumococci, virulent in pure culture.

Macaigne<sup>92</sup> has had recorded a case of croupous pneumonia, associated with effusion into the knee-joint of the affected side. Upon aspiration, creamy, greenish pus containing pneumococci was withdrawn. The pneumonia subsided, but the condition of the joint became more aggravated and finally arthrotomy was performed. Pneumococci were demonstrable in sections made from the synovial membrane of the joint. Tournier and Courmont<sup>93</sup> present the case of a man aged fifty, who upon the sixth day of the disease manifested symptoms of a markedly acute, suppurative arthritis of the left knee. Arthrectomy failed to relieve the condition. Death resulted from inflammation of the other serous surfaces.

In Bois<sup>94</sup> case the pneumonia was in association with suppurative arthritis of the wrist-joint and a left-sided empyema, and for the latter complication incision and drainage were demanded. Gailliard and Morley report one case of arthritis with recovery. Upon the fourth day of the disease, swelling and pain in the knee, in a man of sixty years, developed. Another case was reported by Mennier.<sup>95</sup> Aspiration resulted in the escape of a quantity of a dirty yellowish fluid, which microscopically yielded pneumococci and staphylococci. Inoculation of a mouse with this exudate brought on an attack of pneumonia. Bouillon was now inoculated and after death of the pneumococci, streptococci were in evidence. Bois observed that arthritis of a single joint is most commonly encountered and that the shoulder and knee joints are oftenest affected.

Vogelius<sup>96</sup> has reported three cases. In the first of these, a male aged sixty years, in whom before the physical signs of the pneumonia were developed, there appeared an empyema with pain and swelling of one hip joint. Pus appeared and

bacteriologically there were found diplococci, apparently identical with Fränkel's micro-organism. The patient recovered. In the second case a man aged thirty-eight years developed upon the fifth day pain at the middle of the right clavicle; this was succeeded by swelling, redness and fluctuation of the right sterno-clavicular articulation. Upon exploration, a sero-purulent fluid was found, in association with yellow membranous flakes, this being followed by disorganization of the sternal end of the clavicle. Many diplococci were discovered in the exudate. The patient recovered.

Fernet<sup>97</sup> reports two incidences of osteoarthritis. The first of these is reported in conjunction with Lacapere. A man of forty-seven years suffered arthritis of the right wrist, a few days following crisis. The swelling was well marked upon the dorsal aspect, and in association there were pain and redness. Aspiration yielded a few drops of a clear watery fluid which exhibited pneumococci. Swelling disappeared but fluctuation was still present upon the 38th day. Lateral movements of the wrist joint were accompanied by crackling. Radiography revealed a separation of the carpus and the bones of the forearm on the unaffected side. The diseased side presented a grayish mass. The ends of the bones of the forearm were apparently in contact with the carpus. The extremity of the radius was enlarged and eroded. Evidently in this case, adhesions were formed between the radius, the ulna and the carpus. Ankylosis would appear to be a natural termination.

Fernet<sup>98</sup> also attended two cases. In both of them the sterno-clavicular joint was affected. A sudden onset was followed by severe pain and considerable swelling, with very little or no redness present. The swelling resulted from the edema of peri-articular cellular tissue; that it was produced by an arthritic effusion was shown by experimental puncture. Rapid erosion of the joint surfaces gave crepitation on the 13th day. Fibrous ankylosis prolonged the duration of the case. In one case the natural termination took two months. The other case terminated fatally at the end of three weeks. Autopsy showed the following facts: Infiltration with serum in peri-articular cellular tissue. The muscles were pale with purulent striae, and there was destruction of the cartilage and the ligaments. Effusion in the joint was present. With difficulty a few drops of serum were obtained which yielded a pure culture of the pneumococcus. In this last case there were found a pulmonary and meningeal infection.

Miller<sup>99</sup> has recently reported a case involving the right wrist on the 11th day of the disease. The subject, a man with no history of injury and a good personal history, but a habitual drinker, came under observation upon the seventh day of the disease. The local physical signs were confined to the left upper lobe, the temperature was 103°, pulse 100, respiration 44. The blood showed a slight leucocytosis of 18,000, and the

urine a trace of albumen. On the 11th day a defervescence occurred accompanied by profuse sweating and marked amelioration of the general symptoms and a fall in the leucocyte count to 13,400. On the same day pain was experienced in the right wrist and swelling was noted; later the joint became reddened and edematous, but no grating was detected. Puncture of the joint and aspiration of the fluid yielded upon bacteriological examination lancet-shaped diplococci. Two and one-half months subsequently the wrist was still stiff and of little use, and the prospect of complete restoration of function seemed very doubtful.

Preble records a case occurring in a male, aged thirty-three years, with a favorable family and personal history. The patient had an attack of influenza a month previous to the pneumonia. The onset was announced by a chill, diffuse pain, especially marked in the left side, but pain was experienced upon the opposite side when inspiration was forced. There was pain in the right shoulder and in all the joints of the left arm. He had some cough, nausea, vomiting, anorexia, constipation and insomnia. Respiration was rapid and noisy. The skin was markedly jaundiced and over the sacral region erythematous; about the left shoulder and elbow the skin was discolored. Pneumonic consolidation occupied the left lower lobe, and upon the opposite side a pleuritis with effusion. There was also multiple pneumococcus arthritis.

Since this paper has been prepared for publication we have been much interested in the valuable contribution of Herrick of Chicago upon pneumococcic arthritis which was published in the *American Journal of the Medical Sciences* for July, 1902. Herrick has discovered 52 cases in the literature of the subject, including some of his own. It is interesting to note that in 2,292 cases of pneumonia treated by various Swiss and German physicians, only two cases of arthritis occurred. In regard to the frequency with which different joints are involved in this complication the following quotation from Herrick's paper seems to us of interest: "In 23 of 52 cases the upper extremities alone were involved; in 18 cases the joints of the lower extremities alone; in 11 there was involvement of joints of both the upper and lower extremities. These figures show a slight preponderance in favor of limitation to the upper extremity, but so slight that little or no significance can be attached to it. In fact the knee seems to be the joint oftenest affected, being involved in 22 of the 52 cases, in three of which both knees were affected, so that out of a total of 84 joints the knee makes up 25, or about 30 per cent. The involvement of other joints was as follows: the sterno-clavicular, eight times; the shoulder, 12 times; the elbow, nine times; the wrist, eight times; the metacarpophalangeal, twice; the hip, three times; the knee, 25 times; the ankle, three times; the metatarsophalangeal, three times. The arthritis was

monarticular in 32 instances, or in 61.5 per cent. of the cases. The joints thus solitarily involved were: shoulder, 10 times; knee, nine times; wrist, five times; elbow twice; sterno-clavicular, four times; and the hip, ankle, metacarpophalangeal, and metatarsophalangeal each once. Of the remaining cases there were involved two joints, nine times; three joints, four times; four joints, once; more than four, three times. These figures bring out the fact that the larger joints are more often affected.

Herrick, therefore, believes that we may conclude that:

(1.) It is a rare affection, found oftener in men, sparing no age.

(2.) It appears oftener during or shortly after croupous pneumonia, sometimes as late as the third week after the crisis.

(3.) It may be primary in the joint, and severe and even fatal constitutional symptoms may result from the toxemia thus induced; in these cases of primary pneumococcic arthritis pulmonary localization may or may not occur.

(4.) Previous damage to a joint as by trauma, rheumatism, or gout favors the localization.

(5.) The lesions may be limited to the synovia or may be more extensive, involving the cartilages and bones. The peri-articular structures may be involved. The subacute cases are sometimes highly destructive to the joint, and the same is true of some of the other acuter ones.

(6.) The lesions are usually monarticular (61.5 per cent.), the larger joints being oftenest involved. The knee is the joint most frequently affected. The joints of the upper extremity are affected a little oftener than those of the lower, but the difference is insignificant.

(7.) The condition is recognized by the ordinary signs of an acute or chronic inflammation of a joint. Exploratory aspiration, with bacteriological examination of the fluid, is the only means of recognizing the pneumococcic nature of the inflammation. The gonorrheal arthritis and peri-arthritis have to be carefully excluded, as well as the arthralgias following pneumonia.

(8.) The prognosis is grave—mortality 65 per cent.—largely because of the accompanying bacteremia and involvement of other more vital parts of the body (meninges, pleura, pericardium, etc.). Yet spontaneous recovery occasionally follows, even where there is a purulent exudate.

(9.) The cases of suppurative pneumococcic arthritis should be treated by immediate incision and drainage. Serous arthritis may often be healed by aspiration, rest, and compression.

Still another important complication is *plegmasia alba dolens*. J. M. DaCosta<sup>100</sup> had under observation a girl aged nineteen years, in whom the pneumonia presented cavernous breath sounds, at the angle of the left scapula, and likewise pectoriloquy. On the 30th day a small cavity was suspected; two days subsequently an attack of pleurisy was diagnosticated and upon the forty-fourth day there was noted an exacerbation



in the temperature curve, with pain in the right calf, which disclosed the presence of considerable swelling. Pain was evidenced along the line of the long saphenous vein, with absence of redness and resistance. One day later there appeared swelling, mottling and tenderness of the left leg and thigh. The swelling was firm and resistant, unaccompanied with edema of the veins or any marked degree of their prominence; there was observed, however, some engorgement of the external saphenous, near its passage into the popliteal. Bilateral increase of the knee-jerk, and painful electric reaction, were demonstrated.

Convalescence was not delayed by the existing phlebitis. Three months later, tubercle bacilli were discovered in the sputum. Pain and swelling gradually disappeared. In five months motion had been completely restored.

In another case, DaCosta discovered in a woman aged twenty-eight years, a termination of the disease by lysis on the 20th day of the attack, with the development of pain and weakness in the left leg and tenderness of the left calf. There was but slight enlargement of the veins, the temperature in a few days rising to 101° F.

Associated with this symptom there were noted: Cutaneous mottling, prominence of the veins together with pronounced swelling, hardness and tenderness that was present in the left femoral vein. Subsidence of the swelling is reported to have occurred upon the eighth day. This same physician<sup>100</sup> reports a case of bilateral phlebitis, involving primarily the right saphenous and later the veins of the upper left thigh; the complication having in association with it turbulence of the abdominal veins. There was numbness of the right leg, with pitting on pressure at the upper part of the right thigh. Convalescence was protracted but complete.

In Laache's<sup>101</sup> case, a male, aged twenty-one years, had, following crisis, a swelling of the right lower extremity and enlargement of the femoral vein, which palpation revealed to be hard and cord-like, and at the same time eliciting pain. There was tenderness and enlargement of the inguinal glands. Convalescence was protracted.

Hasell<sup>102</sup> details a case in which five days following crisis, the left thigh and leg presented swelling and tenderness along the course of the long saphenous vein, severe pain being suffered by the patient. The temperature rose to 101° F. The affection subsided gradually.

Mourse<sup>103</sup> attended a patient in whom the pneumonia was complicated by a pleurisy and attended by slow convalescence. After a few hours, pain, swelling and tenderness was experienced in the left leg. An inch below the saphenous opening and directly over the saphenous vein, a swelling developed which had its counterpart in a similar enlargement at Poupart's ligament. These swellings were exquisitely tender, which tenderness extended along the course of the im-

plicated vein. There was some edema. Treatment was effective in abating the duration of the affection, after two weeks' treatment, but venous induration and occlusion remained. This patient gave the history of an antecedent *phlegmasia alba dolens* in a previous pregnancy, and throughout all of her pregnancies. She had, according to her own statement, been a sufferer from varicose veins.

In a male aged thirty-six years, Katz<sup>104</sup> relates the occurrence of pain, swelling, edema, some cyanosis and a fall in temperature in the left leg, immediately following crisis. The femoral vein defied palpation on account of the marked degree of swelling. In three months the edema subsided. There were no fever, albuminuria or cardiac complications.

A case ending fatally is reported by Metcalf.<sup>105</sup> The patient was a woman of twenty-seven years, who during convalescence, experienced pain and swelling in the left extremity. Palpation revealed a cord-like popliteal and femoral artery with pain as a marked symptom. Thirty days from the onset the swelling subsided. Ten days later it had markedly diminished. The sitting posture developed sudden and pronounced asthenia with associated restlessness, dyspnea and pain in the cardiac region. Death from syncope occurred 15 minutes later. The autopsy revealed the existence of firm, white fibrinous coagula, adherent to the walls of the iliac, femoral, and popliteal veins throughout the greater part of their entire extent.

In a woman aged forty-eight years, Porte<sup>106</sup> records the circumstances of the occurrence of phlebitis of the right leg. On the sixth day there was apyrexia; later there were found a rapid irregular pulse, dyspnea, a high temperature, and fainting spells. At the autopsy there was found obliteration of the internal saphenous vein. Red hepatization of the upper right lung, a blood clot on the tricuspid valve, and arterial obliteration at the base of the left lung. Death was brought about through embolism.

An interesting case is detailed by Smith and Porter.<sup>107</sup> Two months following pneumonia, there were noted in a male patient numbness and loss of power. Both feet became cold, bloodless and edematous. There was change in the normal color, and soon a purple hue was in evidence. Bullæ appeared and a lack of arterial pulsation was observed. Agonizing pain was experienced in the feet and legs. The temperature remained between 100° F. and 101° F. Delirium appeared on the 14th day, and in a brief time complete paralysis followed which involved the left arm and left leg, accompanied by a slight paralysis of the right side of the face, with partial loss of consciousness. There was noted a relaxation of the sphincters, also an irregular, intermittent heart and Cheyne-Stokes respiration. Death occurred on the 17th day. Postmortem showed the following: Brain much softened, especially on the right side; the middle cerebral artery was

the seat of a firm clot. Congestion of the lungs, and the bronchial mucosa, with a mucoid exudate were rather pronounced. There was a large hemorrhagic infarct in the upper lobe of the right lung. Heart, pericardium, and spleen were normal; liver large and slightly fatty; kidneys intensely congested, with evidences of a beginning cirrhosis, i.e., an adherent capsule and a puckered exterior. Femoral arteries were normal. A hard clot was found on the right popliteal; similar ones being discovered in the anterior and posterior tibials.

Closely allied to these cases are those of *thrombosis of the veins of the arm*.

Clarke<sup>108</sup> describes this complication occurring upon the ninth day of the disease. Thrombosis of the veins at the bend of the left elbow and part way down the forearm set in with a rigor. The blood showed a leucocytosis of 20,000, and the presence in the blood of pneumococci was demonstrated before death. Septic infarcts of the spleen and liver found postmortem contained pneumococci. Clarke was impressed with the curious fact that in view of the extreme coagulability of the blood after death from pneumonia thrombosis during life was not more frequent.

Since this paper has been prepared for the printer we have read with interest in the *Bulletin of the Johns Hopkins Hospital* for June, 1902, a report of three cases of peripheral thrombosis in pneumonia with a review of those previously published. In this paper, the author, Dr. Walter R. Steiner, speaks of the exceedingly rare occurrence of this complication, for he could only find 38 cases reported. In 27 of these the thrombosis occurred during convalescence. In one case it occurred at the time of crisis and in four during the course of the disease; and in the cases collected by him the lower extremities were always involved. The left lower extremity was involved in 16 cases; the right in 10, and both in seven. The more frequent involvement of the left extremity is attributable in this disease, as in typhoid fever, to the greater length and obliquity of the left common iliac vein and its passage beneath the right common iliac artery. Adding Steiner's three cases to the 38 which he found in literature, making 41, we find that recovery occurred in 25; death in nine and that no definite information is given of seven.

Probably thrombosis or embolism is always responsible for *gangrene of the extremities* after pneumonic infection.

Zuppin<sup>109</sup> reports a case of spontaneous gangrene of both extremities, which occurred in the course of a croupous pneumonia. A girl aged five years had severe pain in the right toe, one day after crisis. Two days later the whole foot became livid with similar involvement on the left side, this was noted also upon the right knee and elbow and upon the left shoulder. The lividity faded from the elbow and knee, but the other affected parts became gangrenous with the formation of vesicles. Two months later, the follow-

ing lesions were noted: On the back there was an ulcer 10 cm. by 9 cm. covered with healthy granulations. Complete disorganization of the left foot was noted, while upon the right foot the great toe was gangrenous, with denudation of the head of the first metatarsal bone; the terminal phalanx of the second toe and the second and third phalanges of third toe were likewise destroyed. Pulsation in the popliteal artery was not discernible on the right side. The left foot was amputated. On the right side the first metatarsal and the cuneiform bones were removed. This is one of the exceptionally rare cases of postpneumonic gangrene in a child.

In the adult spontaneous gangrene as a complication has been recorded by Benedict (gangrene of the foot); by Grimm (gangrene of the fingers), and by Nielsen (gangrene of the fingers and toes). In the case just described, the little girl recovered.

*Parotitis and Submaxillary Adenitis.*—Parotitis is so frequent a complication of croupous pneumonia that the literature on this part of the subject is of rather an extensive character, and a detailed study of individual cases is now about to be undertaken.

Dulles<sup>110</sup> has but recently had recorded a case in a woman aged eighty years, the occurrence of a swelling of the right parotid gland following the crisis. All the symptoms of parotitis were present and later the left parotid became similarly involved, with all the characteristic symptoms in evidence. Dulles recognized in this case an illustration not of a second infection, but of an auto-intoxication, which pursued its course without suppuration.

Anders has reported a case in a woman of middle age with bilateral parotitis, and the same physician describes parotitis of the left parotid gland in a man aged sixty years. In both cases there was hyperpyrexia and delirium. Both patients recovered.

In Thorp's<sup>111</sup> case, bilateral submaxillary involvement was reported. The patient, a male aged fifty, recovered. This complication appeared upon the fifth day of the disease. Upon the 18th day of croupous pneumonia, Miller and Stewart<sup>112</sup> present the history of a case, where a decline in the fever and abatement of the symptoms was succeeded by a left-sided parotitis. Suppuration rapidly followed; incision was performed, and drainage effected. When this complication was most intense, the leucocytes numbered 22,000. On the 37th day death resulted from cystitis.

Coleman's<sup>113</sup> case was a male patient aged thirty years, who was addicted to alcoholic excesses. The process of resolution began upon the 14th day and proceeded rapidly. The right parotid showed swelling, tenderness and redness and continued to increase in size. There was a gradual subsidence of the inflammation and no suppuration resulted.

Halladay's<sup>114</sup> patient, a youth of seventeen



years, gave an axillary temperature of  $106^{\circ}$  F., associated with marked cerebral disturbance. On the seventh day of the disease the left parotid by gradual swelling attained an enormous size and by the 11th day every vestige of inflammation had disappeared. There was no suppuration. The patient recovered.

The case of a woman aged seventy-six years, is reported by Talley and Gittings.<sup>116</sup> In this case the characteristics of senile pneumonia were in evidence. The left parotid offered symptoms of inflammation upon the seventh day, which rapidly increased. The edema extended from the left malar prominence to the left clavicle, involving the neck, both anterior and posterior. Tenderness was elicited, and the gland pitted on pressure. Spontaneous rupture occurred on the 10th day, much pus was evacuated, and there was a rapid disappearance of the swelling. The patient made an uninterrupted recovery. A case is recorded by Eshner<sup>118</sup> of a female of seventy-one years, in which crisis did not occur. Swelling and pain manifested themselves in both parotids on the eighth day. The temperature that had been declining, again became elevated. Death occurred four hours later. A severe case of croupous pneumonia in a girl aged eighteen, described by Miller<sup>117</sup>, showed a high temperature and a profound delirium. Great restlessness was observed, this possibly depended upon a previous chorea, which now became intensely exaggerated. A loud, blowing systolic murmur which was transmitted, was discernible at the apex. There was marked accentuation of the second pulmonic sound. On the ninth day the temperature declined by lysis with abatement of the symptoms. Enlargement and suppuration of the left parotid necessitated incision and drainage. Upon the 11th day there was again an elevation of temperature, with the development of an empyema. Aspiration on the 23d day resulted in the evacuation of one pint of a thick creamy pus. Culture showed the presence of streptococcus pyogenes, and staphylococcus aureus. Death took place on the 27th day. The leucocytes which numbered 17,000, increased with the parotitis to 27,000, then fell almost to normal, to rise again to 18,000 at the height of the empyema. It is probable that endocarditis was another complication of this case.

Morris<sup>119</sup> has recorded a case of parotitis in which a man of fifty-eight years suffered a severe attack of croupous pneumonia, and three days after the crisis, pain and swelling were experienced in the parotid region of the left side; three days later the right parotid became involved. At the expiration of six days the right parotid presented intense swelling, redness and fluctuation. Incision of both glands was resorted to and much pus was evacuated. Bacteriologically there was obtained a pure culture of the *staphylococcus pyogenes aureus*. Recovery ensued.

Carlsaw<sup>120</sup> describes two cases both in elderly female subjects. The first of these was a woman

aged fifty years. Crisis occurred upon the seventh day. Upon this day pain and swelling were experienced in the right parotid region and for six days the swelling augmented; and without any evidence of suppuration, it gradually subsided. Convalescence was slow but complete.

The second case reported was that of a woman aged sixty years. Lysis occurred upon the seventh day. The disease followed an attack of bronchitis. On the third day an exhausting diarrhea set in, which lasted 19 days. On the 13th day pain and swelling were felt in the left parotid region, associated with a slight elevation in the temperature ( $101^{\circ}$  F.). Eventually the swelling extended from the malar prominence to the posterior border of the sterno-mastoid muscle. For two days the parotid gland continued to increase in size, but as gradually underwent a decrease without any evidence of suppuration.

The case of a male, aged forty-seven years, in which there suddenly appeared an enormous swelling in the region of the left parotid gland, is discussed by Duplay.<sup>120</sup> The entire side of the face became edematous, accompanied by intense pain that was aggravated by pressure or by movement of the jaws. There was elevation of temperature and evident systemic depression.

The following case is presented by Hobbs.<sup>121</sup> A male, aged forty-one years, developed delirium about the 14th day. Pain, redness and tenderness in the left parotid region. Tumor was resistant, disappeared in four days, without any surgical interference. A pulmonary abscess was present in this case, Hobbs says; thus we can account for parotid tumefaction, long described in connection with menstruation, blenorragia, influenza and gout, differing from the serious forms of parotitis which constantly undergo suppuration where the pneumococcus is found associated with pneumonia and occurs suddenly as the fever diminishes, abscesses forming in from 24 to 48 hours.

Hawthorne<sup>122</sup> had a case where crisis occurred upon the 9th day. Ten days after the temperature rose to  $103^{\circ}$  F.; pain developed at the left angle of the jaw, associated with fulness and tenderness over the left parotid gland which subsided and in three days entirely disappeared.

The cases reported by Kerr<sup>123</sup> and Osler<sup>124</sup> contain a detailed account of the autopsies. Kerr's case occurred in a man of fifty years. On the 10th day the temperature and respiration being normal, considerable pain and swelling evidenced themselves over the left parotid gland. The temperature fluctuated between  $97.4$  and  $97.6$ . The following day deglutition was painful, and there was swelling in the left tonsil. A dusky swelling presented itself externally which pitted upon pressure. Fluctuation appeared later, pus discharging from the external meatus. On incision a quantity of thick pus escaped. Drops of pus escaped upon incising the tonsil. Insomnia appeared and articular pains developed. Upon the 20th day a pyemic temperature was noted. Four

days later petechial spots appeared upon the chest, death following in a few hours. At the autopsy marked bodily emaciation was noted. The anterior aspect of the body and the limbs presented purpuric spots. The left lung was found normal. The right was everywhere adherent, airless, with no appearance of abscess formation. The pericardium was normal. Thickening of the right ventricle and an old thickening of the aortic valve were observed. There was an ulcerated patch on the aortic segment of the mitral valve nearly to the aortic valve. Two recent infarcts appeared in the spleen. The kidneys were normal. The liver slightly fatty. The brain showed a deposit of recent thick lymph in green patches of the vertex. The arachnoid showed an almost ground glass opacity, with small foci of commencing suppuration. Distension of the vessels was observed. The ventricles presented a considerable quantity of turbid serum; there was no direct communication with the ear. The abscess cavity in the neck extended in various directions, leaving the vessels as clearly outlined as though dissected out with a scalpel.

Osler reports the case of a male aged thirty-three years, small of stature and moderately muscular. When admitted to the Philadelphia Hospital, the patient was delirious. No history was obtainable. The tongue was dry, the hands tremulous, and there was marked carpalgia. The temperature was 103° F.; pulse 120 and feeble; respiration 50. Involuntary passage of urine and feces occurred. There was no expectoration and slight icterus of the skin. On the evening of the second day there was noted slight swelling of the left parotid and also a pleuro-pericardial friction sound, which disappeared upon the third day. On the fourth day a soft systolic murmur was audible at the apex, which grew gradually louder and rougher. There were no cutaneous ecchymoses. No sputum was obtainable. Death occurred on the sixth day after admission. Upon postmortem there was found slight cutaneous icterus with a swelling of the left parotid gland. The left pleura contained one and one-half pints of a sero-purulent fluid. A thick fibrinous exudate glued the upper lobe of the left lung to the pericardium. Both parietal and visceral pleural coverings were bathed with a thick creamy material. The pericardium was normal. Dilatation of the right chambers of the heart occurred, and were filled with firm blood clots. There was no endocarditis. The muscular substance was somewhat relaxed and turbid. Upon examination of the left lung two-thirds of the lower lobe was airless, dark in color and collapsed; the upper third had undergone red hepatization, the adjacent bronchi being filled with tenaceous exudate. The upper lobe was slightly congested and crepitant. Congestion extended to the base, but contained little blood or serum. Congestion of the right lung at the base, bronchial glands enlarged and tumefied. Spleen was softened and enlarged and contained two wedge-

shaped infarcts. Cloudy swelling was present in the liver. The stomach was small and the intestines normal. The large intestine presented patches of deep congestion. The left parotid gland was deeply congested, the interlobular septa infiltrated with blood, with here and there distinct foci of pus. The brain presented no special changes.

*Suppuration in the soft parts* is mentioned in two instances by Preble. The first case occurred in a man who a short time previously had typhoid and pneumonia, later erysipelas. Fifteen days subsequently after repeated chills, he became delirious and suffered with pain in the right knee and left shoulder. At this time the patient was noticed to be very deaf. Pneumonic consolidation occupied the right upper and part of the middle lobe with friction in the lower part of the axillary region. The liver was enlarged and tender by pressure. The urine was 1010 and contained a large amount of albumin, and granular and epithelial casts were found. The joints were tender and there was swelling of the right knee and left shoulder. On the seventh day an abscess was opened on the back in which pneumococci were found; three days later an abscess on the scrotum was found to contain pneumococci. The patient died upon the 12th day.

The second case was that of a child fourteen months old. The onset of the infection was announced by convulsions. Pneumonic consolidation occupied the left lower lobe. On the third day there was a swelling of the left hand; upon the eighth day there was a circumscribed swelling, red, tender and painful, in connection with the humerus, just above the elbow joint; also swelling and redness of several of the small points of the left hand. This swelling proved to be a periostitis due to pneumococci. Several other abscesses developed later in other parts, and were opened in the course of the following weeks. The child had a second pneumonia shortly after resolution occurred with otitis media as a sequel, but finally recovered. No blood examination was made.

Suppurative panophthalmitis was observed in two instances by Preble, but this observer has failed to give the clinical data of this interesting complication. He further states that he has been unable to find in the literature references of similar cases.

*Thyroiditis.*—Lion and Bensaude<sup>125</sup> treated a male patient, aged forty-nine years, who presented a good personal and family history. The man suffered from the disease over a rather protracted course; defervescence was tedious and incomplete until the 17th day. Convalescence was interrupted after the lapse of one week by an elevation of temperature to 102.9° F. In a few days the symptoms of pain, tenderness and swelling evinced themselves, and an abscess developed in the left lobe of the thyroid gland. Incision followed, and the pus was found to contain pneumococci in pure culture.



Pringleau<sup>126</sup> had under his care a man advanced in years, who developed a suppurating orchitis, three days subsequent to the onset of an insidious pneumonia. After a chill and fever, the left testicle became painful. An abscess formed and revealed the existence of diplococci. Recovery followed; however, one month later the patient suffered a relapse, with a resulting fatal termination.

Broadbent<sup>127</sup> records a case of suppuration of the bronchial glands occurring in a boy twelve years old. On the seventh day of a severe but characteristic pneumonia with the pulmonary lesion located at the right base, an abortive crisis occurred; while the temperature fell to 103° the patient was obviously worse in all respects, the pulse rising to 144° and the respiration increasing to 60. On the 9th day physical examination showed the lung resonant and the penetration of air throughout with an entire absence of râles. The temperature rose to 105.6° and the patient was delirious and muttering. Wet packs reduced the temperature and kept it at 103°. Violent paroxysms of unproductive cough occurred frequently, at times lasting two or three hours, and caused vomiting. Talking, eating, or turning on the right side provoked the paroxysms. Finally a rigor and elevation of temperature announced suppuration, and shortly one dram of pus was suddenly expectorated which was repeated in six days, then becoming copious for three or four days. Pressure upon the root of the lung and the displacement of the heart to the left, were found by physical examination to have disappeared. Recovery took place in 10 weeks.

Tardieu<sup>128</sup> describes a curious case where a loud systolic murmur was found at the second interspace on the left and was transmitted toward the axilla. The bruit, dulness, and bronchial breathing at the left apex persisted. Later there was the disappearance of the bruit, which was replaced by a soft hemic murmur appreciable at the apex. The abnormality presented in this case was due to the compression of the pulmonary artery. Undoubtedly the bruit resulted from the pressure exerted by enlargement of the glands.

*Hemoglobinuria* as a complication is exhaustively described by Nash.<sup>129</sup> His patient was a girl of sixteen years, and a systolic bruit was audible at the apex of the heart. The heart and lung were subjected to poulticing with the internal administration of brandy, milk and quinine. On the second day the following was the urine report: Dark yellow; specific gravity 1030; reaction acid; no albumin. The urine passed in the early morning of the third day was blood-stained, with a decrease in the quantity voided; digitalis, nitrous ether, and ammonium acetate were now administered. Severe pains in the back and limbs were complained of, and there was nocturnal delirium. Expectoration ceased upon the fifth day; the physical signs, however, persisted, and there were noted dyspnea and a pronounced anemia. The urine resembled porter, and widely dif-

fused pains were present. Microscopically the urine showed an absence of blood corpuscles, but the presence of many bright red granules arranged singly. A few granular casts with granular debris were disposed of in rows. Subjecting the urine to boiling resulted in a chocolate-colored precipitate, amounting to one-third of its entire volume. This precipitate floated on the surface for several hours. The test with guaiacum yielded a blue coloration. On the seventh day the urine offered a specific gravity of 1020, was smoky, cherry-colored, and gave a precipitate of albumin, amounting to one-sixth the total quantity of urine. Crisis occurred on the seventh day, resolution began and the kidneys augmented the same amount of their excretion. The lungs cleared, the hemoglobinuria gradually vanished, and after the eighth day no evidence of blood, coloring matter, or albumin could be detected. For several weeks there persisted the presence of hemic murmurs over the base of the heart, and at the apex. With the exception of the occasional presence of crystals of calcium oxalate, the urine was otherwise normal. The patient recovered.

One of us (Hare) not long since had under his care a married woman of forty years who developed a deeply-seated croupous pneumonia of the left lung, which presented very obscure physical signs. The patient speedily became violently delirious and on the fourth day developed an intense hemoglobinuria. Death occurred on the sixth day of the illness.

Underwood<sup>130</sup> describes a case of *purpura hemorrhagica* occurring in a child four and one-half years old. The child's family history was distinctly tuberculous and there was a history of dry pleurisy two years before. Pneumonic consolidation was located at the left lower lobe. Upon the 10th day crisis occurred; convalescence progressed favorably, but a desquamation involving the whole body was noticed. About a month subsequently epistaxis occurred which became persistent for twenty-four hours; there was also hemorrhage from the bowels. Purpuric spots were numerous on the skin of both upper and lower extremities, especially on the legs below the knees, also upon the chest, abdomen and back. The hard and soft palate, lips, and dorsum of the tongue showed purpuric spots.

Epistaxis occurred at frequent intervals and the patient became quite anemic; the hemoglobin percentage fell to 50 per cent. In the course of ten days the bleeding was controlled, the resolution of the pneumonic area was slow and a few days subsequently hemoptysis occurred together with oozing of blood from the lips and mouth and blood clots were occasionally sneezed from the nose; finally an ulcer formed on the side of the tongue. There was some extravasation of blood into the conjunctiva of the right eyelid, but at no time were there evidences of hematuria or albuminuria.

A case of *desquamation of the skin* is reported by Lloyd.<sup>131</sup> The patient was an adult male. On

the eighth day of the disease (crisis occurred on the ninth), the upper chest and the clavicles were the seat of a vesicular eruption. Three days later this eruption invaded the entire skin surface of the body, and was attended with intense itching. On the ninth day of the eruption, the cutaneous phenomena entirely disappeared, and was followed by desquamation, covering a period of two months' duration. The patient had not been lately exposed to the virus of scarlatina. The symptoms associated with the vesicular eruption included a fall of temperature to the normal on the day preceding the eruption, the absence of angina and of albuminuria. The patient suffered an attack of scarlatina in childhood.

Underwood<sup>122</sup> also describes a case of desquamation which was followed by purpura hemorrhagica.

Several theories have been advanced to explain the occurrence of icterus in croupous pneumonia, some observers contending that the jaundice is hepatogenous, others that it is hematogenous. Banti<sup>123</sup> is inclined to the latter view, and explains the phenomenon by attributing a peculiar hemolytic power to the diplococcus pneumoniae. He further states that cultures from the cases presenting jaundice produce by animal experimentation hemoglobinuria, but the same procedure in the cases without icterus does not produce a like result.

Preble<sup>124</sup> accounts for the frequent association of jaundice and croupous pneumonia in some epidemics to the virulence of the infective agent, and also contends that jaundice affects the course of pneumonia by the influence which it exerts upon the nervous system, the heart, the gastrointestinal tract and the kidneys. The effects upon the sensorium produce stupor, which appears very early, lessens the sensibility, excites delirium, and manifests itself sometimes by coloring the sputum greenish.

Venous stasis, with compression of the fine bile capillaries has been suggested, but is not found at autopsy to be the causative factor. Catarrh of the duodenum and extension to the bile-ducts is the condition most frequently found post-mortem.

*Otitis Media.*—The possible routes of infection of the middle ear are given by Moos<sup>125</sup> as hematogenous, extension through the Eustachian tube or tympanic membrane, or by entrance through the petrosquamous fissure in children.

Hematogenous infection is thought by Ler-moyez and Helme<sup>126</sup> to give rise to a more violent infection of the middle ear than that resulting from extension through the Eustachian tube; they also believe that such infections are more acute in character. These deductions are borne out by clinical experience; the frequent association of otitis media and general pneumococcus infection, especially when this infection results in a meningitis is striking; in such cases purulent otitis media usually results, while in those due to local extension are usually non-purulent. The

most frequent mode of infection is probably through the Eustachian tube, a variety of middle ear involvement quite common.

Meltzer<sup>127</sup> states that in children otitis media is a most common complication of croupous pneumonia; the otitis develops usually at the onset of the disease, becoming manifest by earache, lasting a day or two, and then lessening or disappearing, but never outlasting the pneumonia and never accompanied by purulent discharge from the ear. The symptoms common to purulent otitis media are usually headache, earache, restlessness and fever; perhaps vomiting delirium and coma.

*Croupous Pneumonia in Pregnancy.*—Transmission of croupous pneumonia from the mother to the fetus is dwelt upon by Netter<sup>128</sup> and has already been referred to.

*Apyrexia and Hyperpyrexia.*—Hanford reports a vigorous man of fifty-six years, strong in mind and body, who feeling ill remained in bed. He had an evening temperature of 100.5° F., with cough and signs and symptoms indicative of bronchitis. Upon two mornings the thermometer registered 99.8° F.; respiration 32, and pulse 104. The cough was frequent, irritating and increased by movement. There was general prostration, abundant, sticky, fibrinous sputa markedly blood-stained and of a bright red color. Friction sounds over a limited area could be appreciated at the axillary region below and posterior. The temperature never exceeded 100.5°. After the 10th day it was normal, and the patient was convalescent. The physical signs appeared typically.

Wunderlich and Lebert observed a case in which the fever only reached a height of 100° F. on the sixth day of the disease.

Hawkins<sup>129</sup> collected statistics of 1904 cases. Of 15 of these cases four recovered. In the fatal cases, the highest temperature recorded was 108.8° F., at one time the thermometer marking 108.4° F.

Statistics in regard to the frequency with which different parts of the lungs are affected are of some interest. The following facts have been collected by Meltzer<sup>130</sup> from the St. Petersburg Marien Hospital: Of 4252 cases, 55.7 per cent. showed right lung involvement and 34.3 per cent. of the left. Both lungs were affected in 9.7 per cent. Crisis occurred in 63 per cent. and lysis in 34 per cent. Meningitis, which was in 17.6 per cent., invariably proved fatal. Pleuritis occurred in 20.4 per cent. of which 80 per cent. ended in death; pericarditis was found in 10.7 per cent. Total death rate was 9.4 per cent.

Ruge<sup>131</sup> observed that in seven rather rare cases of pneumonic relapse the existence of an afebrile period between the attacks lasted from four to 15 days. During this time there was an apparent convalescence. There was partial disappearance of the physical signs. Duration of the relapse varied from four to eight days. The second attack showed a constant predilection for the



part of the lung structure primarily attacked. Wandering pneumonia pursues a more protracted course. The frequency of relapse may be set down as from 0.18 per cent. to 0.45 per cent.

From a study of the literature quoted in this paper we believe that the complications and sequelæ of croupous pneumonia, independent of the cases due to mechanical causes, are best studied and classified as pneumococcic infections. Pathology has not aided us in discriminating as to whether the complicating conditions which are detailed occur primarily with the initial invasion of the organism, or if we are confronted with a general re-infection dependent upon blood contamination with the pneumococcus.

In studying these complications and sequelæ, we may group them arbitrarily into certain classes and divisions that make them easily remembered. The series is composed of six classes. The first class is made up of the Serous Membranes.

#### Class A.

Serous Membranes	Pericardium..	{ Serous and purulent pericarditis.
	Pleura.....	{ Serous and purulent pleuritis and that affecting the diaphragmatic pleura.
	Endocardium..	{ Endocarditis. Malignant endocarditis. Ulcerative endocarditis, endocarditis with or without meningitis, or cerebrospinal meningitis.
	Synovial Membranes	{ Serous Arthritis. Purulent Arthritis. Osteo-Arthritis.

The infection by the pneumococcus may cause pathological changes in the central nervous system by the action of the toxins on the nerve centers.

#### Class B.

(a) Cerebral and Cerebro-Spinal System....	Cerebral Pneumonia.	
	Meningitis.	
	Meningitis due to pressure of exudate.	
	Cerebro-spinal Meningitis.	
(b) Toxic action on the Nerve Centers .....	Hemiplegia.	
	Paralysis.	
	Cerebral abscess.	
	Aphasia.	
(c) Neurotic tendencies	Delirium.	
	Mania.	
	Convulsions.	
	Cardiac asthenia, resulting in delayed resolution, abscess and gangrene.	
(d) Changes in the blood and intra-vascular formations.	Brachial Neuritis.	
	Bilateral polyneuritis.	
	Trophic Disturbances (Herpes Zoster).	
	Temperature Disturbances (Hyperpyrexia) (Sub-normal ranges).	
(e) Hemic Changes ....	Albuminuria and Nephritis.	
	Retention of urine.	
	Tetanoloid and Choreiform phenomena.	

#### Class C.

(a) Intra-vascular (Thrombosis and Embolism).....	Pulmonary gangrene, abscess and bronchiectasis.	
	Spontaneous gangrene of lower extremities.	
	Embolism of right lenticulo-optic arteries.	
	Phlegmasia Alba Dolens.	
(b) Hemic Changes ....	Renal and Splenic emboli.	
	Embolism of the brachial veins.	
	Purpura Hemorrhagica.	
	Hemoglobinuria.	

#### Class D.

Parotitis.  
Suppurative Parotitis.  
Bronchial Adenitis.  
Submaxillary Adenitis.  
Thyroiditis.  
Orchitis.  
Ovaritis and Abscess.  
Hepatitis.

#### Class E.

Infection of Middle Ear { Otitis Media.  
Purulent Otitis Media.

#### Class F.

Edematous Laryngitis.  
Fatty tumor of right auricle.  
Jaundice, from obstruction of the bile-ducts.  
Dilatation of right heart from pulmonary obstructions (?) or toxic myocarditis.  
Delayed resolution and induration from Cardiac Asthenia.

#### BIBLIOGRAPHY.

1. Playfair, Edinburgh Med. Jour., 1891.
2. Archiv für Kinderheilkunde, Vol. XXII, Parts III to VI.
3. Holt, Med. Record, April 7, 1888.
4. Netter, Deutsch. med. Woch., 1889, No. 22.
5. Hood, Lancet, Jan. 24, 1885, page 365. Vol. II, and Lancet, June 19, 1886, page 1157. Vol. I.
6. West, British Medical Jour., Feb. 27, 1886, page 294. Vol. I.
7. Johnson, Lancet, June 29, 1889, page 1302, Vol. I.
8. Smith, N. Y. Medical Jour., Feb. 2, 1884, page 131.
9. Packard, Univ. Med. Mag., page 541, Vol. V.
10. Thornton, Lancet, Aug. 12, 1893, page 367, Vol. II.
11. Dorange, Sajous Annual of Universal Med. Sc., 1893, Vol. XIV, page 5.
12. Jaworski, Wiener Med. Presse XXIV 3, page 84.
13. Johnson, Lancet, June 29, 1889, page 1302, Vol. I.
14. Fernet, Le France Médicale, No. 32, 1882.
15. Aufrecht, Arch. f. Kinderh., 1890, XI.
16. Russell, British Med. Jour., Dec. 15, 1888, Vol. II.
17. Wublad, Brit. Med. Jour., Dec. 15, 1888, Vol. II.
18. Starr, Obstetrical Jour. of Great Brit. & Ireland, Feb., 1879.
19. Raven, Brit. Med. Jour., Aug. 27, 1892, page 461, Vol. II.
20. Fenn, Univ. Med. Mag., 1891, page 432, Vol. 4.
21. Hood, Lancet, Jan. 24, 1885, page 365, Vol. II.
22. Morris, Boston Med. & Surgical Jour., 1890.
23. Thayer, New York Med. Jour., May 9, 1885.
24. Manges, Med. Record, Jan. 13, 1900.
25. Fawcett & Steward, Dec. 22, 1900, Lancet, 1897, Vol. II.
26. Sturgis, Lancet, March 3, 1893, page 354, Vol. I.
27. Venturi, Le Sperimentale, April 30, 1893.
28. Myers, Med. Record, Jan. 12, 1900, page 77, Vol. I.
29. Satterthwaite, Med. News, Jan. 5, 1889.
30. Sainsbury, Lancet, page 327, Vol. I.
31. McConnell, Canada Med. Record, Jan. 7, 1900.
32. Garrod, Brit. Med. Jour., Feb. 6, 1897, page 332, Vol. I.
33. Purser, Brit. Med. Jour., Feb. 24, 1899.
34. Finley, Montreal Med. Journal, May, 1898.
35. Osler, loc. cit.
36. Netter, Archives de physiologie et pathologique, Aug. 15, 1886.
37. Clarke, Brit. Med. Jour., Sept. 21, 1901, page 764.
38. Sellw., Med. Record, Mar. 3, 1888, page 253, Vol. I.
39. White, Lancet, Nov. 10, 1900, page 1331, Vol. II.
40. Hood, Brit. Med. Jour., May 19, 1888, and Lancet, Aug. 18, 1894, page 369, Vol. II.
41. Pensoldt, Deut. med. Ztg., No. 39, 1888.
42. Drummond, Brit. Med. Jour., July 18, 1891, page 113, Vol. 2.
43. Bradley, Med. News, Sept. 2, 1893, page 265, Vol. 2.
44. Masotti Centralblatt für Klinische Medizin, 1888.
45. Holt, Med. Record, July, 1892, page 52, Vol. 2.
46. Eisendrath, Phila. Med. Jour., Nov. 9, 1901, page 786.
47. Holt, Med. Record, Dec. 1, 1888, page 656. Vol. II and Jan. 3, 1885, page 21, Vol. I.
48. Perry, Trans. Path. Socy., London, 1893, page 12.
49. Goelet, North Carolina Med. Jour., Vol. 1, XXXIV, Nov., page 217.
50. Thorp, Brit. Med. Jour., Aug. 25, 1883, page 406, Vol. 2.
51. Brookhouse, Lancet, June 12, 1886, page 1111, Vol. 1.
52. Fisher, N. Y. Med. Jour., Aug. 21, 1897, page 255, Vol. 2.
53. Dejerme, Lancet, Jan. 2, 1892, page 21, Vol. 1.
54. Syers, Lancet, July 18, 1891, page 122, Vol. 2.
55. Edson, Med. Record, Oct. 6, 1888, page 421, Vol. II.
56. Molson, Med. News, 1882, page 380, Vol. 41.
57. Elsner, Med. News, March 25, 1899, page 353.
58. Sello, Zeits. f. Klinische Med., XXVII, 1899.
59. Fisher, Brit. Med. Jour., Sept. 21, 1901, page 766.
60. Curnow Lancet, Nov. 6, 1897, p. 1188, Vol. II.
61. Cimbali München. Med. Wochenschr., Feb. 18, 1890.
62. Fraenkel, Deutch. Med. Wochenschr., 1893, Nov. 23, page 933.
63. Tuttle, N. Y. Med. Jour., Dec., 1887.
64. Edwards, Univ. Med. Mag., 1886, page 163, Vol. 1.
65. Bouilliche, Thèse de Paris à 1892.
66. Straus, Revue de Mensuelle, 1877, page 754.
67. Aufrecht, Archiv für Kinderheilkunde, 1890.
68. Lanth, Archiv General de Médecin 1884, Dom. 2.
69. Carnien, Gazette Hebdomadaire des sciences Médicale Mont, 1882.

70. Jaccoud, *Lancet*, July 6, 1879, Vol. 2.
71. Ransom, *Lancet*, Jan. 20, 1894, page 154, Vol. 2.
72. Wublad, *Brit. Med. Jour.*, Dec. 16, 1888, Vol. 2.
73. Aufrecht, loc. cit.
74. Bozzio, *La Riforma Medica*, Jan. 16, 1895.
75. Aldrich, *Cleveland Jour. of Medicine*, May, 1901, page 230.
76. Batten, *Brit. Med. Jour.*, Sept. 21, 1901.
77. Aufrecht, *Deut. Archiv. für Klinische Med.*, Dec. 22, 1897.
78. Chantemesse, *Soc. Méd. des Hosp., La Semaine Médicale*, 1893, No. 73, page 582.
79. Leszynsky, *Med. Record*, Nov. 16, 1895, page 799, Vol. 2.
80. Krafft-Ebing, *Prager Medicin. Wochenschr.*, XXIII, page 26.
81. Kelynack, *Medical Chronicle*, Nov., 1890.
82. Page, *Med. News*, April 6, 1895, p. 377, Vol. I.
83. Eason, *Scottish Medical & Surgical Jour.*, April, 1900.
84. Campbell, *Med. News*, March 3, 1894, page 235, Vol. I.
85. Weichselbaum, *Wiener Klinische Wochenschrift*, 1888, No. 28-32.
86. Leroux, *Les Arthrites a pneumocoques*.
87. Cave, *Lancet*, Jan. 12, 1901.
88. Picaque and Veillon *Archiv de Médecine Experimentelle*, Jan., 1891, f. 68.
89. Raw, *Brit. Med. Jour.*, Dec. 21, 1901.
90. Vogelius, *Archiv. de Méd. Exper. et d'anat. path.*, 1896, VIII, No. 2, 186.
91. Rendu *Med. News*, Aug. 4, 1900, page 189, Vol. II.
92. Macaigne Le Mercredi, *Medical*.
93. Tournier & Courmont, *Rev. de Méd.*, Sept. 10, 1897.
94. Bois Arch., *Gen. de Méd.*, May, 1898.
95. Mennier, *Arch. Gen. de Méd.*, Nov., 1894.
96. Vogelius, *Archiv. de Méd. Exper. et d'anat. Path.*, 1896.
97. Fernet & Lacapere *Société Médicales des hop de Paris*, May 18, 1900.
98. Fernet & Lacapere *Société Médicales des hop de Paris*, May 18, 1900.
99. Miller, *Pha. Med. Jour.*, Jan. 25, 1902, page 186.
100. Da Costa, *Philada. Med. Jour.*, Sept., 1898, Folio 519, Vol. II.
101. Laache, *Deutsche med. Woch.*, Aug. 1893, p. 785.
102. Hasell, *Ontario Med. Jour.*, Jan., 1894.
103. Mourse, *Med. Record*, Apr., 1894, p. 525.
104. Katz, *Deutsche Med. Woch.*, July 1, 1897.
105. Metcalfe, *N. Y. Med. Times*, Apr., 1893, 1894, p. 193.
106. Porte, *Médecine Moderne*, June 30, 1894, p. 826.
107. Smith & Porter, *Lancet*, Dec. 27, 1884, page 1143.
108. Clarke, *Brit. Med. Jour.*, Sept. 21, 1901, page 764.
109. Zuppin, *Wiener Klin. Woch.*, 1899, No. 13, page 335.
110. Dulles, *Boston Med. & Surgical Jour.*, March 28, 1901.
111. Thorp, *Brit. Med. Jour.*, Aug. 25, 1883, page 406, Vol. II.
112. Miller & Stewart, *Phila. Med. Jour.*, March 16, 1901, page 500.
113. Coleman, *Phila. Med. Jour.*, April 21, 1900, page 878, Vol. 5.
114. Halladay, *Phila. Med. Jour.*, May 12, 1900, page 1053, Vol. V.
115. Talley & Gittings, March 24, 1900, page 690, Vol. V.
116. Eahner, *Philada. Med. Jour.*, April 27, 1901, page 790.
117. Miller, *Philada. Med. Jour.*, March 16, 1901, page 500.
118. Morris, *Phila. Med. Jour.*, April 27, 1901, page 500.
119. Carslaw, *Glasgow Med. Jour.*, 1895, page 24.
120. Dunlay, *La Semaine Médicale*, Jan. 14, 1891.
121. Hobbs, *Archiv. Cliniques de Bordeaux*, Jan., 1895.
122. Hawthorne, *Glasgow Med. Jour.*, 1895, page 22.
123. Kerr, *Lancet*, May 18, 1889, page 984, Vol. I.
124. Osler, *Univ. Med. Magazine*, 1894, page 246.
125. Lion & Bensaude, *Bul. de la soc. Anat. de Paris*, June, 1894, page 434.
126. Prioleau, *Le Mercredi Médicale*, 1894, No. 36, P. 439.
127. Broadbent, *Brit. Med. Jour.*, March 5, 1898.
128. Tardien, *Jour. de Médecin*, No. 14.
129. Nash, *Lancet*, 1893, page 1571, Vol. I.
130. Underwood, *American Med.*, Oct. 19, 1901.
131. Lloyd, *Lancet*, 1878.
132. Underwood, *American Med.*, Oct. 19, 1901.
133. Banti, *Centh. F. Bak.*, 1896, XX, 849.
134. Prehle, *Jour. Cunn. Med. Assn.*, Aug. 19, 1899, page 441, Vol. II.
135. Moos, *Deutsch med. Woch.*, 1891, Bd. XVII.
136. Sermoyez and Helme, *Ann. des Malades de l'Orneillo du Larynx du Nez et du pharynx*, Paris, 1895, Tome XXI, No. 1, 35-38.
137. Meltzer, *Lancet*, May 13, 1889.
138. Netter, *Deut. med. Woch.*, No. 22, 1889.
139. Meltzer, *Lancet*, May 13, 1899.

#### ON THE CAUSES, VARIATIONS AND SIGNIFICANCE OF THE COLOR OF THE FECES.\*

BY LEWIS A. CONNER, M.D.,  
OF NEW YORK;

PROFESSOR OF CLINICAL MEDICINE IN THE CORNELL UNIVERSITY  
MEDICAL COLLEGE; ATTENDING PHYSICIAN TO THE  
HUDSON STREET HOSPITAL, NEW YORK.

In view of the growing appreciation of the importance and value of the systematic examination of the feces it may perhaps be of interest to consider somewhat the sources of the fecal color,

\* Read at a meeting of the Society of Internal Medicine, New York, 1902.

together with its variations and its clinical significance.

The color of the normal stools of adults upon the usual mixed diet is, it is hardly necessary to say, a brown of varying degrees of darkness. This color, while due in large measure to the presence of modified bile pigment, is nevertheless the result of a number of causes, and any one of these may under certain conditions become the chief factor in determining the hue. In considering the elements which go to make up the color it is convenient to group them under the following heads: (1) Digestive Secretions; (2) Food Residue; (3) Discharges from the Intestinal Mucous Membrane; (4) Accidental Ingredients, e.g., Drugs, etc.

(1) *Digestive Secretions*.—That these secretions take a considerable part in the making up of the fecal mass is evident from the fact that in conditions of starvation or fasting, when the intestines contain no food whatever, the feces, which then consist only of the digestive secretions, mucus, desquamated epithelium and bacteria, are of considerable quantity and of dark, pitch-like appearance.<sup>1</sup>

Of the various digestive juices the bile is the only one which takes any considerable part in furnishing color to the stools. Its rôle, however, is so important that it may be well to consider for a moment the history of its coloring matter from the time of its formation in the liver.

The bile as it is secreted contains a single pigment—bilirubin. A part of this bilirubin is promptly oxidized, either in the bile passages or soon after reaching the intestines, into biliverdin and several allied bodies. In meconium and in the stools of nursing infants, where putrefactive changes are slight or absent, biliverdin and bilirubin respectively appear as the normal ingredient. After the first few months of life, however, the bile pigments, under the influence of the putrefactive bacteria in the intestine, undergo a process of reduction to hydro-bilirubin and thenceforth never appear as constituents of normal stools. This hydro-bilirubin then, a reduction product of bilirubin, constitutes the normal yellowish-brown pigment of the feces. It was described in 1871 by Vanlair and Masius<sup>2</sup> who called it stercobilin. Soon afterward this was shown by Maly<sup>3</sup> to be identical with the urinary pigment urobilin. The change from bilirubin takes place usually in the small intestine, and both Frerichs and Nothnagel<sup>4</sup> have demonstrated by postmortem examination that under normal conditions, neither bilirubin nor biliverdin, as shown by their positive reaction to Gmelin's test, are found in the contents of the intestine below the cecum. A certain amount of hydro-bilirubin frequently, and perhaps always, undergoes still further reduction to a colorless body called by von Nencki leuco-urobilin. It is to the presence of this colorless chromogenic body and its gradual oxidation back to hydro-bilirubin that Quincke<sup>5</sup> ascribes the gradual darkening in color which the



surface of feces undergoes upon exposure to the air.

It may be said in parenthesis here that this darkening in color upon exposure to the air is explained in a different way by Fleischer<sup>6</sup> who believes it to be due simply to a process of drying and not to any chemical change, and he explains in the same way the very dark color of feces which have remained for a long time in the rectum.

Under certain circumstances, to be spoken of later, most or all of the hydro-bilirubin may be reduced to leuco-urobilin and then the stools may simulate the clay-colored feces of jaundice.

But the bile derivatives are not the only coloring matters supplied by the digestive secretions. Ehrenthal<sup>7</sup> found that in starving dogs with biliary fistulae—i. e., dogs in which neither food nor bile entered the intestine—dark-colored, pitch-like feces were passed whose color he ascribed to the pancreatic juice. Under normal conditions, however, this secretion probably has little influence in determining the color of the stools.

(2) *Food Residue*.—With the usual mixed diet the food residue plays only a subordinate part in the make-up of the fecal color, but where the food has a pronounced and distinctive color this may modify considerably the appearance of the feces. So, for example, vegetables rich in chlorophyll, such as spinach or lettuce, may give a greenish tint to the dejections and the abundant ingestion of carrots is said sometimes to impart their distinctive color.<sup>8</sup>

In general a vegetable diet produces much lighter colored stools than does a diet chiefly of meat. A meat diet alone is associated with very dark brown feces in which the color is due in part to the conversion of the blood-coloring matter of the meat into hematin (Fleischer<sup>9</sup>). A diet of milk produces the familiar yellow or yellowish white stools.

In infants fed upon breast milk the feces have the orange yellow color of the yolk of egg; the color being due to the presence of unchanged bilirubin, which, owing to the absence of putrefactive processes, is not changed in the intestine. With babies fed upon cow's milk, however, the stools have regularly a lighter, yellowish white color.

By the action of the alkaline contents of the intestine the red coloring matter of certain berries such as blueberries and huckleberries is so changed as to give to the stools a dark brown or slightly greenish hue. Red wine is said to produce a somewhat similar color.

Quincke<sup>5</sup> has called attention to the fact that the degree of translucency of the ingredients of the feces has some effect upon the color; that with the same quantity of coloring matter the stools appear the lighter the more they contain of such highly refractive bodies as fat droplets, crystals and gas bubbles.

(3) *Discharges from the Intestinal Wall*.—Among those which may modify the color of the dejections are mucus, pus, serum and blood.

*Mucus*, although so common a constituent of pathological stools, does not usually give to them a distinctive color. When in large quantities, however, and when thoroughly mixed with the feces these have a glistening, grayish or yellowish gray appearance.

*Pus* will in rare instances give a distinct yellowish or yellowish-gray tone to fluid stools. That this may occur two conditions are necessary; first, that the pus be in large amount and, second, that it come from the lower part of the large intestine, since pus originating higher in the intestine is so rapidly changed as to be unrecognizable in the stools by the naked eye. It is rarely seen therefore in the stools except as the result of the rupture of some perirectal abscess.

*Serum*, aside from giving to feces a watery consistence, will also impart its own straw color when the usual fecal pigment is lacking as, for example, in the rice-water stools of cholera, in which there is usually cessation of the biliary secretion.

*Blood* can give to the feces a great variety of tints depending upon its amount and upon the degree of change which it has undergone. This latter corresponds usually to the length of time which the blood has remained in the intestine; so that, in general, blood from the rectum or sigmoid flexure, which is promptly discharged, retains its normal color, whereas blood from the small intestine will have undergone such change, by the conversion of its hemoglobin into hematin, that it presents an appearance suggestive of coffee grounds or of tar. The appearance of the blood indicates the location of the bleeding, however, only in a very general way, since with especially active peristalsis blood from high up in the small intestine may be discharged so promptly that little change will have occurred.

If the blood be in small quantity and be intimately mixed with the feces it may give to the stools an orange tint suggestive of paprika (Nothnagel<sup>10</sup>). Finally, it must be remembered that certain articles of diet, e.g., cocoa, huckleberries, etc., may produce in the stools an appearance which may easily be mistaken for disorganized blood.

(4) *Accidental Ingredients*.—*Drugs*. Among the most interesting of the variations in the color of the stools are those produced by the use of certain drugs; and concerning certain of these changes there is much popular misapprehension.

*Bismuth* preparations produce a blackish or dark green color by the reduction of the ordinary salts (sub-nitrate, sub-carbonate, etc.,) to *bismuth oxydyl* and not the bismuth sulphide as so commonly believed (Quincke<sup>5</sup>).

*Calomel*, contrary to the general impression, causes greenish stools (in adults at least) only infrequently and then, Quincke believes, not by the formation of sulphide of mercury but, apparently, by checking the putrefactive processes and by so preventing the reduction of all the

bilirubin; so that instead of hydro-bilirubin the feces contain the greenish biliverdin.

*Iron* usually does not affect the color of the stools until they have been exposed to the air for some time, when they become blackish gray, not from the presence of iron sulphide but by the oxidation of some organic compounds of iron (Quincke).

*Rhubarb, Senna and Santonin* are said sometimes to give to the feces a yellow color.

*Methylene Blue* causes no discoloration of the stools as passed but within a few minutes these take on a bluish green tint which gradually deepens.

In this connection it is well to emphasize the fact that many stools, both those of infants and of adults, change their color very materially upon exposure to the air. Under such circumstances it is important to compare the color of the interior of the fecal mass with that of the surface.

*Bacteria.* In certain of the green diarrheas of children Lesage<sup>10</sup> has found a bacillus which develops in cultures a green pigment and which, he believes, stands in casual relation to the diarrheas.

Salus<sup>11</sup> asserts also that *bacillus pyocyaneus* can under certain circumstances give a greenish color to the stools.

*Clay-Colored Stools.*—The association of grayish white or "clay-colored" feces with obstructive jaundice has long been noticed and their lack of color, very naturally, ascribed to the absence of the bile coloring matters. Some years ago, however, Bunge<sup>12</sup> announced that these acholic stools owed their clay color not to the absence of bile but rather to the presence of an excessive quantity of fat and he showed that by extracting this fat with ether such stools assumed a much darker color, which color he attributed to the presence of hematin and sulphide of iron from the food.

The fact that the feces in obstructive jaundice contained enormous quantities of minute needle shaped crystals had been noticed before. Gerhardt<sup>13</sup> believed these to be crystals of cholesterin. Their true nature as fat crystals had been proved, however, by Oesterlein<sup>14</sup> Stadelmann,<sup>15</sup> and others. Franz Müller<sup>16</sup> in some very careful investigations showed that, whereas in normal feces only from seven to 10 per cent. of the ingested fat could be recovered, in obstructive jaundice the feces contained from 55 to 78 per cent. of the total quantity of fat eaten. That the gray color of such stools was due, however, to this fat and not to the lack of bile remained for Bunge to show. His observations were soon verified by Fleischer<sup>6</sup>.

Clay-colored feces, in cases of jaundice, in which neither bilirubin nor hydro-bilirubin could be found, would invariably, upon treatment with ether, show a much darker color. In two cases of obstructive jaundice recently examined by me this return of the dark color of the stools upon removal of the fat was very striking. Fleischer was unable, however, to demonstrate iron sul-

phide in such stools and believes the color to be due to hematin alone. But Ehrenthal<sup>7</sup> has shown that the bile is not the only digestive secretion which gives color to the feces, and it seems probable, therefore, that this resulting color may depend upon several causes.

*Colorless Stools without Jaundice.* It has also been noticed for a long time that typical, gray, clay-colored feces are occasionally to be seen where there is neither jaundice nor other evidence of biliary obstruction. Such stools have been seen by Nothnagel<sup>17</sup> in leucemia, in cancer of the stomach and the intestines, in intestinal catarrh in children, and especially in cases of advanced phthisis. Von Jaksch<sup>18</sup> has noticed them in intestinal tuberculosis, chronic nephritis, chlorosis and scarlatina. Berggrün and Katz<sup>19</sup> have called attention to their great frequency and their diagnostic value in chronic tuberculous peritonitis in children.

Such light-colored stools seem, as regards their causation, to fall into two fairly distinct classes. (1.) Those in which the lack of color is due to the great amount of fat present; (2.) Those in which most of the bilirubin has been reduced beyond the stage of hydro-bilirubin to the colorless body leuco-urobilin (leuco-hydro-bilirubin).

An excess of fat in the feces may result from several causes other than the lack of bile. (a.) Ingestion of an unusually large quantity of fat even with normal digestion; (b.) Disturbances of the fat absorption in the small intestine; as, for example, with atrophy, amyloid degeneration or tuberculosis of the mucous membrane, and especially by the occlusion of many lymph channels such as occurs with caseation of the mesenteric lymph nodes in *tabes mesenterica* and in chronic tuberculous peritonitis. Berggrün and Katz have shown that the light colored stools so frequently seen in chronic tuberculous peritonitis in children depend upon an excessive amount of fat and they regard such stools as of considerable diagnostic significance, since the presence in them of hydro-bilirubin is proof that the fat is not due to the absence of bile; (c.) Finally, it is possible that the absence of the pancreatic juice from the intestine may occasionally cause such fat stools. That it always, or even usually, does so however is certainly not the case. Most of the clinical evidence is entirely opposed to the view that disturbed pancreatic function is associated with an increased amount of fat in the feces (Nothnagel).

Of the second class of clay-colored stools without jaundice—those due to the reduction of bile pigment to the colorless body leuco-urobilin—much less is known. It is certain that not all such stools contain an excess of fat. Quincke<sup>8</sup> states that this reduction to leuco-urobilin may be so great that for weeks at a time, without obstruction to the bile, almost colorless feces may be discharged in which the extraction by alcohol furnishes an abundance of hydro-bilirubin. The



conditions favoring this abnormal reduction of bile pigment to leuco-urobilin are by no means clearly understood. They seem to be connected, usually, however, with increased putrefactive changes in the intestines.

The separation of these two types of colorless stools is usually not difficult, since the second class can be identified by the lack of an increased quantity of fat and by the prompt darkening of color, upon treatment with acid alcohol, as the leuco-urobilin is oxidized to hydro-bilirubin.

**Green Stools.**—In conclusion, a few words concerning green colored stools. These, except in those infrequent cases in which the color is due to bacterial action or to the food, are always caused by the presence of biliverdin.

This pigment may be said never to occur as a normal constituent of the feces except in meconium. In infants, however, where the putrefactive processes in the intestines are slight and where bilirubin is found normally in the feces, biliverdin will appear upon slight provocation. The green color may be present when the stool is passed or may develop only after it has stood for some time.

Biliverdin is found in the stools of children in diarrheas of many sorts. Such stools are usually alkaline in reaction and both Pfeiffer<sup>20</sup> and Biedert believe that the appearance of biliverdin is associated with increased alkaline reaction of the contents of the upper part of the small intestine.

In adults green stools are of much less frequent occurrence, but are occasionally seen in certain diarrheas. Fleischer believes that they occur only where there is inflammation with increased peristalsis of both small and large intestine and never when one or the other alone is involved, since with normal peristalsis in either large or small intestine there would be time for the reduction of the biliverdin to hydro-bilirubin.

#### REFERENCES.

1. Fr. Müller. *Zeitschrift für Biologie*, XX, 1884, p. 327.
2. *Centralblatt für med. Wissenschaften*, IX, 1871, p. 369.
3. *Centralblatt für med. Wissenschaften*, IX, 1871, p. 849.
4. *Die Erkrankungen des Darms*, etc. (Spec. Path. u. Ther. Bd. XVII), Wien, 1898, p. 9.
5. *Münch. med. Woch.*, 1896, p. 854.
6. *Lehrbuch der inneren Medizin*, Wiesbaden, 1896, p. 1161, et seq.
7. *Arch. f. d. Ges. Physiologie*, XLVIII, 1891, p. 74.
8. Schmidt & Strasburger. *Die Fäces des Menschen*, Berlin, 1901, p. 21.
9. *Die Erkrankungen des Darms*, etc., p. 84.
10. *Archives de Physiologie*, IV. Série, Tome I, 1888, p. 212.
11. *Prag. med. Woch.*, 1894, No. 33.
12. *Lehrbuch d. physiol. u. pathol. Chemie*, Leipzig, 1887, p. 192.
13. *Zeitschrift für klin. Med.*, Bd. VI, 1883.
14. *Mittheilungen aus d. med. Klinik in Würzburg*, Bd. I, 1885, p. 1.
15. *Deutsch. Arch. für klin. Med.*, Bd. XL, 1887, p. 372.
16. *Zeitschrift für klin. Med.*, XII, 1887, p. 101.
17. *Die Erkrankungen des Darms*, etc., p. 18.
18. *Klin. Diagnostik inneren Medizin*, II Auf., Wien, 1889, p. 213.
19. *Wien. klin. Woch.*, 1891, p. 838.
20. *Jahrbuch für Kinderheilkunde*, XXVIII, 1888, p. 164.

**Tuberculous Celebrities.**—Numerous victims of tuberculosis are found in the ranks of the celebrities, according to a recently compiled list. Of authors and actors may be mentioned: Molière and Desclée, the first "Dame aux Camélias;" poets and men of letters, Malfilâtre, the philosopher Guyau, Shelley, the novelist Louis Deprés, etc.; physicians, Bichat, Lennec, etc.; while musicians may be represented by Chopin, the friend of George Sand, who has described the early phases of the disease in this matter.

#### SUTURE OF THE SOLID VISCERA.

BY R. C. COFFEY, M.D.,  
OF PORTLAND, OREGON;

SURGEON TO AND MEDICAL DIRECTOR OF THE NORTH PACIFIC  
SANATORIUM; SURGEON NORTHERN PACIFIC RAILROAD.

In considering this subject I refer especially to the liver, but the same principles apply to the spleen and kidney. Looking over the literature we find that little headway has been made in suturing the liver. The chief danger is hemorrhage. It seems that practically all attempts to suture the liver have thus far been aimed towards a direct suture, as it is used in other tissues of the body. At present the only safe method of dealing with a wound of the liver is by packing or connecting with the surface. Direct sutures have been recommended and have been successful in some instances, but we have every reason to be-

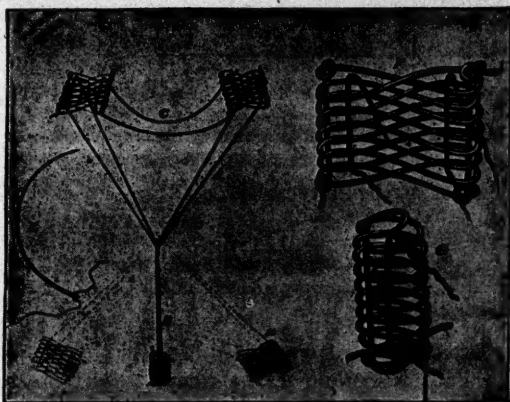


Fig. 1. Mechanical drawing of the Y stitch. (A) Long quilt suture placed at the outer edge of catgut supports. (B) Loop thrown around the deep quilt suture and supported on the opposite side by a single catgut support. (C) Superficial quilt suture passed through the inner edge of the catgut support. (D) Dotted lines showing the loop necessary in case the cut is entirely through the liver. (E) Long, slender, round, curved needle. (F) Double catgut mat for support of two sutures. (G) Single catgut mat for support of the anchor stitch.

lieve that the cases in which the hemorrhage was controlled by direct suture would not have proved fatal had no sutures at all been applied. In studying the liver we find that the vessels are sparsely distributed. The wound of the liver which does not involve one of the large veins, it is reasonable to suppose, would be like a wound of any other part of the body which did not involve a large vessel, in that the hemorrhage would cease of itself. If a large vessel is involved which cannot be safely tied, then the pressure of sutures which control this hemorrhage must be, in a measure, proportionate to the blood pressure. A study of the liver will at once convince an investigator that direct sutures, unless the wound be in the fibrous portion near the edge, will be of no value. This has been practically admitted by all writers. Most of them have

agreed that it is useless to depend upon anything except Glisson's capsule. Others have used quilt

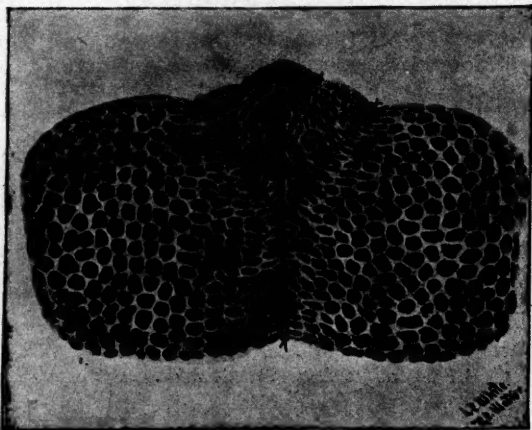


Fig. II. A section of the pith of a gourd sewed with the Y-suture and superficial quilt suture showing the direction of the stitch pressure by the compression of the pores.

sutures; some have used decalcified bone, but they have been found to produce suppuration, and tear through as if no support had been used. Beck has recommended and used strips of fascia, or tendon. After thoroughly considering all the work which has been done on the liver, Beck concludes that at present we must hope that some suture material will be devised which will be broad enough to hold liver tissue and yet which will be absorbable.

Within the past few months I have been making some experiments with suture of the liver. I am thoroughly convinced that after we pass Glisson's capsule the softer structures of the liver have no more value in retaining sutures which are to control and counteract blood pressure than so much mush. I consider it impossible, there-

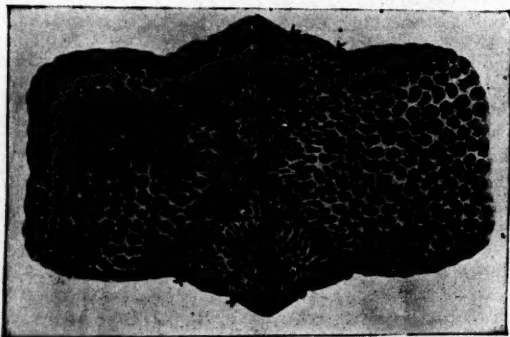


Fig. III. X-suture, applied in the same manner after a cut entirely through the liver substance.

fore, for any suture to be applied directly to the liver tissue with a reasonable hope of controlling the hemorrhage. Bridge builders and carpenters,

centuries ago learned to take advantage of angles which brought the pressure and weight to bear upon the material in an indirect manner. In this way structures are built, large roofs are sustained, immense bridges are suspended with perfect safety, which otherwise would be impossible. While the method I suggest is immature and possibly may be only the beginning of a method, I am sure that the liver, if it is to be sutured at all, must be sutured by some method which involves the principles suggested. The accompanying cuts represent the diagram of a method which is mechanically successful in suturing liver tissue. You will notice that by this method all the pressure comes upon Glisson's capsule at three or four points, which is protected by a weave of catgut. The pressure is all toward the center of the incision and obliterates all space at the bottom.

Two sutures are used, one being applicable to an incision which does not penetrate the liver entirely, and the other is applicable to wounds in



Fig. IV. A sheep's-liver with the catgut support and the deep quilt suture applied ready to tie with the anchor stitch from the under side thrown around it.

which the liver is severed through and through. One we may call the Y-suture, the other the X-suture. The Y-suture is placed as follows: A round curved needle, at least four inches long, armed with catgut or silk, is passed through the catgut support to the bottom of the incision, comes out on the other side, passes through another catgut support, re-enters through the support of the same side, goes back parallel to the other stitch and comes out through the support from which we started, making a quilt suture. A suture is then passed from the opposite side of the liver, either straight through or indirectly, as may be convenient, includes the two threads at the bottom of the cut in its loop, comes out on the bottom of the liver and again both ends passing through a single catgut weave are tied in the form of a quilt suture, thus drawing the other suture well into the bottom of the cut. The first suture is now tied and any amount of pressure



can be used, for the line of pressure is not against the suture, but is upon the catgut supports. Thus the bottom of the wound is brought in absolute apposition and any amount of pressure desired may be used. This may not bring the surface of the liver in as close contact as is desired, therefore, a second quilt suture is passed through the edges of the support, nearest the wound, simply taking in the capsule. In this way the tissues are absolutely brought in contact, and as much pressure can be brought to bear in closing a wound of the liver as in any other part of the body.

In closing a wound of the liver which extends entirely through its substance, a modification must be used. Instead of the single suture which goes into the bottom of the liver, a second quilt stitch is passed through both sides on the bottom, the same as the Y-suture above, interlocking the two sutures to the center of the



Fig. V. A sheep's-liver which has been sutured by this method.

wound. In this way the pressure is brought to bear in a very effectual manner.

In some of the cuts will be noticed a diagram of the stitch which has been passed through the pith of a gourd and in this way the pores have been partially closed along the line of pressure, which shows accurately the direction in which the pressure is made.

As far as I know this method of suturing is entirely new, and as has been previously stated is to a certain extent immature, except as far as the mechanical tests go. I am at the present conducting a series of experiments on living animals, for the purpose of obtaining information as to the amount of catgut which will be absorbed, whether the catgut or silk is better to suture the liver, and how much of the liver, and what portion, may be removed by this method without producing serious consequences in the animal. I simply mention the method now, in order that others who may be working along the same line may at least consider the subject and the method in their work. The points which are original, as far as I know, are the use of a catgut weave

for a support and the indirect or angular pressure made by a counter-traction suture.

For the benefit of those who are working along this line, I will suggest that the needle should be round, full-curved and fully four inches long. The one with which the counter-stitch is made may be a simple darning-needle or any kind of a long straight needle.

#### PULMONARY SYPHILIS; REPORT OF A CASE.

BY JAMES M. WINFIELD, M.D.,  
OF NEW YORK;

LECTURER IN DERMATOLOGY, LONG ISLAND COLLEGE HOSPITAL;  
DERMATOLOGIST TO THE KINGS COUNTY HOSPITAL, ETC.

MORTON was, perhaps, the earliest writer to mention the possibility of syphilis affecting the lungs. In 1675 he described certain pulmonary diseases that were cured or ameliorated by anti-syphilitic remedies.

During the eighteenth century many clinicians attempted to differentiate lung syphilis from true consumption; but it was not until about 1854 that any positive data were obtained, when Lance-reaux, Ricord, Fournier and others, reasoning from certain postmortem evidences, were led to place this heretofore somewhat hypothetical conjecture upon a firmer basis; and the certainty that syphilis did produce sequelæ in the lung became a recognized fact.

It was not, however, until the *bacillus tuberculosis* was proven to be the specific etiological factor in pulmonary consumption, that a positive differential diagnosis was made in the living subject.

Formerly it was thought that syphilis did not attack the lungs as frequently as it did the other viscera. A Russian pathologist, quoted by Potain, states that out of 21,757 autopsies he found evidences of this disease of the lungs only 11 times. Virchow, in his earlier writings, expressed a doubt if it ever attacked the adult lung, although it was frequently found in children. On the other hand Porter of New York considers it to be common in adults. Satterthwaite is of the belief that lung syphilis is greatly underestimated by the general practitioner, and "almost unknown to many syphilographers." A Berlin physician recently (1900) made the extravagant statement that "syphilitic tuberculosis was so common that it decimated the flower of the land."

Reasoning from the conflicting opinions there seems but little doubt that syphilis does invade the lungs, almost as frequently as it does the other viscera.

The reasons why evidences of it are so seldom found are, perhaps, these: (1) The difficulty in differentiating it physically from tuberculous phthisis; (2) the possibility of syphilis and tuberculosis co-existing, and (3) the complete cure of the syphilitic lung lesion.

Pulmonary syphilis may be either congenital or acquired, and the lesions are of the tertiary stage. As examples of the inherited variety are quite frequently reported this paper will discuss only the acquired form.

Lung involvement has been observed as early as the second year after the primary infection; in fact Potain records an undoubted case occurring only two months after the chancre; but the majority have been seen after the specific disease had existed for a much longer period; some even as late as twenty years; one has been reported by Chowski at twenty-one years after the primary sore.

On postmortem one or two pathological conditions will be found. One, according to Lance-reaux and others, consists of a gummatous and sclerotic infiltration: either of these conditions may advance to an ulcerative stage, as described by Orth.

According to Councilman and Julien the pathological changes are syphilitic degeneration of the arteries, thickening of the alveolar walls, and a filling up of the alveoli with epithelium cells; in short, an interstitial pneumonia is produced. The infiltration advances towards the periphery, and as it continues there may be considerable fibrous changes, especially about the bronchi and large blood vessels. This altered structure readily tends to necrosis and caseation, liquefaction and the formation of cavities.

Syphilitic interstitial pneumonia rarely occurs alone, but is generally associated with gummatous infiltration, but gummatous deposits may exist without any fibrous degeneration. Gummata may be either single or multiple, although the number seldom exceeds 10; in size they vary from a flaxseed to an egg, although the large single ones are rare.

The cavities are produced by the breaking down of one or more gummata, or the softening of bronchial glands, healing results in scarring and contraction. Gummata are generally located within the pulmonary substance and about the root of the lung, near the large bronchi and vessels. In a vast majority of cases the lower lobes are the ones affected.

These findings date back to the writings of the earliest observers; although cases have been seen in which the deposit was in the apex and near the surface, yet in 90 per cent. the trouble is found to be in the lower lobes and well in the substance of the lung.

The first noticeable symptom is a bronchial catarrh, which may or may not be accompanied by a cough; after the disease has progressed the cough may become a more or less prominent symptom. Dyspnea is constant and troublesome, and in some cases may simulate attacks of bronchial asthma. While hemoptysis is not common, fatal hemorrhages have occurred from softening of a gland that has ruptured into a large blood vessel.

Expectoration is scanty in the early part of the disease, consisting of glary and stringy particles of mucus with small clots of blood in the center. As the disease progresses the expectoration may become profuse, purulent and offensive. Repeated examinations of the sputum fail to reveal the presence of the tubercle bacillus.

One German observer claims to have seen the syphilitic bacillus of Lustgarten. The record of this finding must be taken with caution, for careful examination under most favorable circumstances often fails to find this elusive syphilitic germ even in the suspected tissues; and even if found it would take considerable bacteriological skill to differentiate it from the tubercle bacillus.

Pain situated in the scapular region, and which can be produced by pressure over the sternum, is sometimes present and is of a peculiar character; it usually begins before the expectoration and lasts long after all other symptoms have subsided.

The sufferer from this disease may emaciate, but often there is no appreciable loss of weight until the disease is far advanced. Night sweats are not common; pyrexia is seldom seen early in the disease; later, if there is absorption of pyogenic material, this symptom may become as marked as in true consumption. Examination of the bones of the thorax will reveal marked thickening of the clavicular periosteum.

Very little can be gained by physical examination. There may be complete absence of r le or bruit, and again all of the signs of consolidation and cavity. A correct diagnosis can only be made from the absence of the tubercle bacillus after repeated and careful examinations of the sputum; the evidences of tertiary syphilitic lesions; the eliciting of a syphilitic history; and last, but by no means unimportant, the relief obtained from anti-syphilitic remedies.

*Recapitulation of Symptoms.*—Disease more frequently observed in females; bronchial catarrh; dyspnea, often distressing; scanty and blood-stained expectoration becoming profuse and purulent as the disease progresses; sputum never contains the tubercle bacillus; pain referred to the scapular region and also can be aggravated by pressure over the sternum; night sweats uncommon; little, if any, elevation of temperature; emaciation not a prominent feature; the presence of periosteal thickening of the clavicle; signs of bronchial stenosis; consolidation and cavity formation.

The following history is interesting, because it shows how easily syphilis of the lungs can be mistaken for tuberculosis; even by the most competent observers.

Early in the fall of 1901 Mrs. S. consulted me for a chronic cutaneous ulceration, situated principally over the outer aspect of the forearms. Her previous history was as follows: Married; aged thirty-eight years; native of the United States; parents living; no history of consumption in the family. She was married at twenty-six; six months after her husband died of typhoid fever; four months later her child, a boy, was born; he was delicate from birth, but now appears healthy. After remaining a widow for five years, she remarried. She became pregnant two years later; aborted at the third month; has never been pregnant since; convalescence from the abortion was slow; in fact she has never been perfectly well since. About a year after the miscarriage



she began to be troubled with bronchial catarrh, cough and dyspnea.

She consulted two very competent physicians of Brooklyn; both said she was suffering from tuberculosis and advised her to go to the mountains. Being unable to follow the doctors' advice, she received active treatment at home, but without any apparent benefit; her weight became reduced from 135 to 95 pounds. After continuing this way for two or three months she consulted a prominent pulmonary specialist of New York, who told her that she was far advanced in consumption, and her only salvation was to go immediately to the mountains. Thoroughly alarmed, she took up her abode in the mountainous region of southern New York.

The doctors there confirmed the diagnosis and prognosis of the specialist; but in spite of the gloomy outlook she began to feel better; her appetite improved, and her weight increased. The pulmonary condition remained about the same, except that the expectoration became more profuse and purulent.

After living in the mountains for two or more years, the doctor advised her to go back to Brooklyn; telling her that it was only a matter of time anyway, for there were evidences of a large cavity in the left lung. She came home and has continued to improve ever since. During her stay in the mountains she received all sorts of treatment for tuberculosis, even injections of anti-tuberculous serum.

On personal examination I found her to be a large fine-looking woman, apparently not over thirty years of age; her weight is now 180 pounds.

The skin disease for which she consulted me was a well-marked serpiginous tubercular syphilide, situated over the forearms, legs and back.

She denies all knowledge of any primary infection, but on close questioning she recalled that during the year following the miscarriage she had been troubled with sore throat and mouth, and that her hair had fallen out in "spots."

Physical examination revealed the presence of a cavity in the lower lobe of the right lung, near the base; the left lung appeared normal. Each morning, or on arising from a recumbent position, she will have a violent fit of coughing, which empties the cavity of muco-purulent sputum.

The patient assured me that none of the lung specialists had ever examined her sputum, and that when she asked them to do so, they said the certainty of the physical signs made it unnecessary.

While she was in the mountains she consulted a New York dermatologist regarding the skin lesion, for which she afterward came to me; he examined her sputum, and, judging from the treatment instituted, recognized the true pulmonary disease as well as that of the skin.

I examined her sputum and failed to find any evidences of the pathognomonic germs of consumption. The same report was received from

three expert bacteriologists, who had received specimens for examination.

When the diagnosis had been determined she was put on anti-syphilitic remedies, iodides, mercury, tonics, etc., and immediately improvement followed, and at the time of writing, except for a slight cough, some sub-scapular pain, and dulness over the site of the cavity she is practically well.

(In passing it is interesting to note that the skin lesion had been diagnosed as cutaneous tuberculosis.)

If we take into consideration the classical pulmonary symptoms, the unmistakable history of the early manifestations of syphilis, the presence of a late dermal tubercular syphilide, together with the absence of the tubercle bacillus, and the rapid and permanent improvement under anti-syphilitic remedies, we are safe in assuming that this patient had been, and was suffering from pulmonary syphilis.

47 Halsey Street, Brooklyn, New York.

## ADDRESS.

### MOSQUITO DESTRUCTION.<sup>1</sup>

BY GEORGE A. SOPER, PH.D.,

SANITARY ENGINEER, DEPARTMENT OF HEALTH, NEW YORK CITY.

LADIES AND GENTLEMEN: In complying with the request of the President of the Department of Health of New York to address you on the subject of mosquito destruction, it is recognized that the town of Flushing has special claims for consideration. In Flushing we have a large population situated on upland, immediately adjoining extensive tracts of salt meadow, but a few feet above the level of Long Island Sound. The country to the east and west, and, in fact, all about Flushing, Whitestone and the adjoining villages, has long been recognized as a region whose natural advantages have been much interfered with during the summer months by mosquitoes. Malaria, a disease the importance of which occupies a front rank in the calculations of insurance companies, if not in the estimation of residents and old settlers, has been considered endemic in the Borough of Queens, as in the Bronx and Staten Island, for many years. Now that methods for the destruction of mosquitoes and the suppression of malarial fever are available, it is fitting that your town should be among the first to receive attention. Unfortunately the Department of Health cannot rid you of mosquitoes on the instant. In fact, the plans which are making for wholesale mosquito prevention, and which are intended to have a general application, are not yet complete and will not be available for some time to come. But I am instructed to say that meanwhile all the aid and encouragement which can be given for such work as your association may carry on will be most cheerfully supplied.

You have been quick to recognize that the duty of all good citizens is to assist in promoting this newest form of sanitation. By uniting the spirit and energy of those who have the interests of the community at heart the greatest progress can be accomplished.

Malarial fever and the mosquito nuisance have been mentioned together. They are closely related. The

<sup>1</sup>An address delivered before the Good Citizens' League of Flushing, New York, August 13, 1902.

causes of neither can be seriously doubted by anyone whose mind is open to proof.

For example, it lies within the power of any person to satisfy himself as to the essential facts connected with the breeding of mosquitoes. If there be anyone inclined to doubt the statements of scientists and others which have been made so current by the newspapers, particularly with regard to the prevalence of breeding-places and the rapidity with which mosquitoes multiply, let him go into the back yards and empty lots of Flushing and look for puddles or tubs which have been standing with water in them for some time. In all probability his search will be rewarded. In some of these collections of water small objects will appear which look like animated exclamation-points skating across the water or hanging in a pendent position from the surface. Let some of these wrigglers, as they are called, be captured and kept in water for a few days and they will become winged mosquitoes. It is believed that mosquitoes breed only in stagnant water. Long grass and vegetation afford shelter and harbor for the adults, but not conditions necessary for the hatching and development of the larvæ.

*How Malaria is Transmitted.*—The fact that mosquitoes are necessary and sufficient for the spread of malaria rests upon proof which is as indisputable as the fact that mosquitoes are hatched in water. The microbic parasite which is always present in the blood of persons ill of malarial fever is absorbed by the mosquito in the act of sucking blood. It has been found with the microscope in the stomach of the mosquito. From the stomach the parasite enters the salivary or poison glands, and from these it is injected when the mosquito again bites. A mosquito infected with the malarial microbe may live through a summer and bite frequently. As you well know, mosquitoes frequently hibernate through the winter in cellars.

Perhaps one of the most conclusive proofs that mosquitoes convey malaria from person to person has been afforded by English investigators who went to some swamp lands near Rome and lived in a mosquito-proof house in a district infested with malaria without contracting the disease. At the same time infected mosquitoes, which were carried from this place to London, and allowed to bite two gentlemen who had never had malaria, caused a prompt appearance of the disease.

It is an old and exploded theory, but one which has gained in its many years of acceptance a wide currency, that malaria is due to a subtle poison which rises as a mist or gaseous vapor from such matters as stagnant water, newly upturned earth and low-lying land. There is abundant evidence to show that these conditions are not directly the cause of malaria. To go no farther, we may consider the twenty-one miles of excavation for the rapid-transit subway on Manhattan Island. So far as can be learned, no more malaria has occurred among the people along the line of this work or among the laborers engaged upon it than is normally present. In the light of present knowledge, stagnant water, excavations in the earth and low-lying land are associated with malaria only because they often afford breeding-places in which malarial mosquitoes are developed.

To put one in peril of malaria it seems to be necessary and sufficient that the malarial mosquito shall be present and have access to some person suffering from the disease. In Greater New York these two conditions often occur. Malaria is very prevalent, but of an exceedingly mild type.

*The Two Principal Kinds of Mosquitoes.*—And here I should probably point out that considerable differences exist among mosquitoes, and that it is possible

to divide those which occur hereabouts into two classes—mosquitoes which simply annoy by their bites and those which both annoy and carry malaria. The mosquitoes which make up these two classes are quite different in appearance and in their habits of breeding. In the neighborhood of Flushing the most prominent mosquito is the *Culex sollicitans*, which breeds plentifully at the edges of salt marshes, has a habit of biting by day and night, and is dressed in a garb resembling the conventional uniform of gray and black stripes worn by convicts. This species of *Culex* is not known to be harmful to man in the sense of carrying malaria, although its power to cause discomfort, even to the point of affecting the value of real estate, is not to be denied. Another common species is *Culex pungens*, which often breeds in buckets and rain-barrels. The last mentioned are household mosquitoes and are most troublesome at night.

As compared to the *Culex*, the *Anopheles*, or malaria mosquito, is rare. It is seldom seen flying about in the daytime, and its presence might not be suspected except for the cases of malaria which occur. It is peculiarly the habit of the malaria mosquito to confine its depredations to the neighborhood of its breeding-places, many observers believing that it rarely travels over 250 yards from the water in which it is hatched.

There is no trouble in distinguishing between the malaria mosquito and others. In appearance it is a dark-colored, sleek, gamey-looking insect with spotted wings. In contrast with the common hunchbacked *Culex*, the stinging instrument of the *Anopheles* mosquito lies on a straight line with its whole body. The malaria mosquito breeds in small fresh-water pools and in cow-tracks and post-holes, for example, which are above the reach of the tide. The line where the fresh water of the upland oozes out into the region of tidal influences marks a favorable locality. The wrigglers and winged insects are most often found in glens, cloves or hollows occupied by swamps or quiet brooks. When very plentiful, the *Anopheles* mosquito breeds in pools, puddles, pits, wells, cisterns, catch-basins, and similar places in which it would not ordinarily be sought. In fact, it is not possible to announce positively that *Anopheles* will not breed in any small accumulations of stagnant water which are not salt and which are free from fish.

It is important to keep in mind these facts which are generally agreed to as the most essential concerning the breeding of mosquitoes, if intelligent methods are to be followed in avoiding the pests.

*Methods of Destroying Mosquitoes.*—There are various ways of reducing the number of mosquitoes in a neighborhood besides the usual retail method of waiting until the insects bite before destroying them. Adult mosquitoes may be killed in a house by the burning of pyrethrum powder or by the use of formaldehyd or sulphur. Any druggist will supply these materials and explain how they are to be used.

The most effective methods of avoiding a prevalence of mosquitoes depend upon the fact that the insects lay their eggs on or near still water which hatches them into air-breathing wrigglers and finally winged mosquitoes. Often 200 eggs are laid at a time, and the average period required for these to produce adults is usually a little more than ten days.

The simplest way, therefore, to prevent a mosquito nuisance is to avoid allowing small accumulations of stagnant water to occur. It is astonishing to note how extensive and prolific are the breeding-places of mosquitoes even in thickly settled places like Flushing. Without systematic search for them, I have found here pools and buckets of water each of which prob-



ably gave off 100 mosquitoes per day. It is easy to conceive that such a space could give off 5,000 mosquitoes in a summer. If there are 200 such breeding-places, which is not a large estimate, we have 1,000,000 mosquitoes accounted for at once. It was estimated last year that a gentleman living in a town near Flushing contributed over 10,000,000 mosquitoes during the season through the rain-barrels and tubs which were kept upon his premises.

It is a very simple matter to destroy the breeding-places of mosquitoes which occur in your town among the residences. Here is work at your very door-step, and I would advise that the campaign begin here. I would suggest that you employ a corps of inspectors to go from yard to yard every month or so to look for accumulations of standing water, and that they be instructed to call the attention of householders, caretakers and others to the objects, methods and advantages of their visit. A brief word of instruction will usually be sufficient to induce the tenants to destroy or remove the objectionable conditions found, but in the event of resistance or wilful interference with your work the Department of Health can be appealed to. The Department of Health has power to order the abatement of nuisances, and can require that the breeding-places of mosquitoes which occur on private property be destroyed by filling, draining or other means.

Your inspectors will find that bottles, tin cans, buckets, pails, rain-barrels, tubs and other such receptacles are common causes of offense. These should be destroyed or removed beyond the possibility of further trouble.

Cisterns and cesspools are frequent causes of difficulty. It is not impracticable to keep a few fish in cisterns and rain-barrels. Goldfish and silverfish are recommended for this purpose. For the correction of cesspool breeding-places a few ounces of oil should be passed into the drains once a week.

When the breeding-places of mosquitoes in the thickly settled parts of the town are attended to, or when this work is well under way the campaign should be extended. Puddles and low places in vacant lots which hold permanent accumulations of water should be treated; where practicable they should be filled with earth, sand or other sanitary material. Occasionally it may be feasible to drain away water without causing further offense, and when this can be done it is a proper remedy.

Pools of water formed by road or railway embankments are a common cause of difficulty in this neighborhood. Often they can be filled or drained at trifling expense. In some cases, however (and it is unfortunate that these instances are very numerous in Greater New York), the draining of ponds and pools made by the construction of streets and roads can be accomplished only by following an extensive plan of drainage. Under such circumstances property owners may combine to construct drains, but you will find it difficult to obtain their consent to the assessment necessary for the work. It is hoped that the Board of Health will find a way to procure proper drainage for such places, either through the construction of drains which will form a part of the sewerage system of the city, by filling, or by the construction of channels which will be useful until the growth of population warrants the completion of the general sewerage plan.

Oftentimes there will be need of an immediate remedy, even though this be but temporary. Here oil is indicated, as a physician would say. Oil is an excellent temporary remedy; it costs little and its effects are immediate. For oiling pools of water, what is known as Light Fuel Oil, supplied by the Standard Oil Com-

pany at \$2.75 per barrel is recommended, although many other oils are good. When the oil is applied it forms a film over the surface of the water, and the wrigglers or mosquito larvæ, which come to the surface in order to get air to breathe, are suffocated. The oil should be applied as often as necessary to keep a thin film on the water. In some cases it will be necessary to apply it every two weeks or oftener. Oil can be easily sprinkled upon the water by means of a watering-can, or a cup or bottle may be used to scatter it in the case of small pools. The Department of Health is now distributing free of charge oil and a knapsack apparatus for the application of oil to small water surfaces. The allowance of oil generally required is about one gallon per 2,000 square feet of water surface, or a little more than half a barrel to the acre.

The *Culex* or common ring-legged mosquito breeds chiefly in brackish pools on the meadows just above the influence of ordinary tides. These pools can generally be drained at very trifling expense. In order to do this work an inspection should first be made to determine the location of the breeding-places. A lath or other handy stick should be thrust into the ground to mark a pool which is to be drained; a white cloth tied to the upper extremity of the stick will make its location more conspicuous. A small gang of laborers, say half a dozen, may then go upon the meadow, and after marking the course of the proposed ditch with a cord stretched between stakes, they may proceed to dig.

In most cases the channels may well be of uniform width, say 18 inches across, with vertical sides and dug down to tide-water. The ditches may be joined like crow's-feet or branched or anastomosed. If dug down to mid-tide level, the tide will rise and fall, through most of the system of drains, causing currents of water to flow in them which will effectually prevent the larvæ from propagating. Fish, mostly top-minnows, will make their appearance in the drains. The pools, which are generally shallow, dishlike receptacles, will dry up and give growth to pickle and other vegetation. In this way meadow land lying within two feet of tide-water may be completely rid of mosquito-breeding places at trifling expense. The cost of ditching in this way is about a cent and a half per running foot, reckoning that a laborer working for \$1.50 per day digs ten feet of ditch per hour. No elaborate map or plan or calculation is necessary preparatory to ditching of the sort described.

The foregoing method of draining the meadows has no reference to what is properly known as reclamation. It is not intended that the land shall be made suitable for growing crops. The object is simply to give vent to pools of water in which mosquitoes breed. The reclamation of the many square miles of meadows or salt marshes in Greater New York, so as to make them suitable for agricultural and building purposes, is a very large problem. The digging of simple little ditches or drains provides, like the use of oil, a temporary relief from mosquitoes, and for the meadows this is the best and most economical remedy that can be made effective until more permanent relief measures can be carried out.

It is my opinion that if you arrange to prevent the breeding of mosquitoes in your back yards, streets and vacant lots, and can put a temporary stop to the multiplication of mosquitoes in your fresh-water pools, swamps, salt meadows and semistagnant brooks in the neighborhood, you will have rendered the Department of Health and yourselves the greatest service which is now within reach. Whatever is done should be undertaken in as systematic and regular a way as possible, in order that the accusation most often and justly made

against the work of mosquito brigades—that their methods are haphazard—may be avoided. It will be well worth while to lay out a definite plan of action and to record the methods used and the results accomplished even though such clerical work should take some time from your active operations.

## MEDICAL PROGRESS.

### SURGERY.

**Prosthetic Use of Paraffine.**—The use of subcutaneous injections must be pronounced as a great advance in surgery, as many disfiguring deformities now easily permit of correction. Yet there are certain risks connected with the injection of large amounts, the chief ones of which are pulmonary embolism and the development of toxic symptoms. By removing the syringe from the needle to see if this has struck a vein the danger of the former cannot be entirely obviated. F. NEUMANN (*Prog. med. woch.*, June 26, 1902) points out another fatality which may occur, namely infection in cavities which are not entirely clean. These will be especially encountered in dental surgery and whenever he has occasion to fill a cavity or dental cyst, he always takes the precaution to add a disinfectant to the paraffin.

**Tuberculous Exostoses.**—What may be called rare manifestations of the tuberculous process are the bony outgrowths occasionally seen during the course of a tuberculosis. Upon this subject, M. MAILLARD (*Rev. de Chir.*, 1902, No. 6) offers the following facts: In certain patients one meets with exostoses upon the tuberculous bones which are small, vermiculated, dentilated and of other various forms, but have a normal regular structure and cannot therefore be regarded as tuberculous in origin. The osteophytes are produced under very different circumstances. One series which is much the more common appears upon bones which were previously the seats of a tuberculous condition, but at so great a distance from the principal focus to make it unlikely that they become confused with the periosteal outgrowths which sometimes heap up about the true focus of disease, especially as a means of cure in the filling up of destroyed bone areas. The other series, much the more rare of the two, appears upon bones in medical subjects of tuberculosis whose bones were previously entirely healthy. In both of these cases the histological structure is the same. The first variety may be explained by the theory of protection to the organism, representing the reaction of the periosteum as a whole to the tuberculous osteitis which is well known as spreading by continuity. The second variety is also produced by a reaction of the periosteum, but remote, not local. It may be explained by assuming a low grade of osteomyelitis produced by the bacteria and their poisons. The periosteum takes on a similar reaction. The parallel of this is seen in the periostitis and osteomyelitis of typhoid fever. The reason why this reaction is more evident on the part of the periosteum than of the bone-marrow, is probably due to its loss of function consequent the fatty degeneration which it is known to undergo in tuberculous patients. Another evidence to this fact is the absence of sequestra.

**Surgery of the Spinal Canal.**—The spinal canal and its contents are among the more recent fields of surgical work. E. HAHN (*Deutsche Zeitschr. f. Chir.*, 1902, May) gives the following observations in summing up the clinical aspects of the matter: According to his experience it is very much less difficult in the vast majority of cases to make a diagnosis of the segment in which the disease is located than of the nature

of the pathological process *per se*. By reference to the tables of Thorburn describing the zones of sensibility referable to each segment of the cord, to the schematic representation of Gowers of the relations between the spinous processes and the bodies of the vertebrae, to the segments of the cord, and further by consultation of the tables of Edinger and Starr and the law of Scherrington, the matter of determining just where the lesion is becomes rather easy; but no aid is given by such data as to the nature of the lesion. This matter is one of far greater difficulty as a diagnosis, actually an impossibility sometimes, but always a vastly important factor in the indications for and against operation, in the outlook for its success and in the ultimate cure of the patient. All intramedullary tumors and diseases must be essentially precluded from any operative interference, a fact which relegates to the surgeon only the extradural and the intradural cases. The latter of these are in danger, immediately and remotely, from the loss of cerebrospinal fluid when the dural sac is opened. Sik has devised the simple scheme of gently ligating the cord at the time of the operation, to shut off the rest of the subdural cavity and thus prevent any loss of the fluid. This plan of procedure works very well indeed. Proof of its efficacy as an operative aid and of its safety and harmlessness upon the cord-tissue and its functions is indicated by the extraordinarily satisfactory results of Schede in this field after using the suggestion of Sik. In tumor-cases, after removal of the growth, suture of the dura is advisable. Statistics of these operations are the following: Up to 1900 Krause found thirty-two records, fourteen deaths and eighteen recoveries; since then Hahn has found (including Krause's series) forty-three records, eighteen deaths, twenty-four recoveries, and one failure. The length of time since these operations were done is not long enough to permit of any discussion of permanent results. The fact that benign tumors of the cord predominate will indicate that the end results will be permanent in most cases. As to the kinds of tumor occurring in this region Hahn gives this list: Fibroma, lipoma, sarcoma, myxoma, both intra- and extradural. Caries of the bones remains in its essence necessarily almost always extradural, likewise echinococcus cysts, but syphilitic deposits of all types are almost always intradural and intramedullary. The prognosis is of course best when purely extradural tumors are encountered and reserved when they are intradural, but if no evident permanent drainage has occurred to the nerve-tissue it is, even in these, good. Compared with the prognosis of fractures, dislocations and other lesions with wounds of the nerve-substance, which are always followed by degenerations, both ascending and descending, that of all classes of tumor is better, because these degenerations are not marked in them. The technic of the operation for tumor is easy because it is usually located behind or beside the nerve tissue.

**Impressions of the Foot and Hand for History Records.**—Up to the present time the usual manner of making impressions of the soles and the palms for the purposes of history records has been by the technic of Volkmann, so well known and consisting of glazed paper covered with soot. This is a very acceptable makeshift but has various well known disadvantages. First of all is the dirtiness of the whole process, because not only are the skin of the patient and physician smeared at the time of the original record, but also those of the latter whenever the same is consulted at subsequent dates. The record itself can not be fixed and made permanent. Such carbon pictures give the gross outlines of the foot and hand rather successfully, but they miss the refinements of the skin very often.



A paper which must be fully adapted to this purpose must not only possess none of these faults, but also present at least these three characteristics: Readiness for instant use without any special preparation; freedom from material which comes off upon the hands and its covering must be in a fine film; ability to receive and record all the fine points of the skin. BERMANN (C'blatt f. Chir., 1902, No. 27), in searching for such a paper found the ordinary photographic celluloid-copying paper to fulfil all these data. The skin of the sole is rendered just a little and uniformly damp with soda solution such as is used in the fixing bath, or with the ordinary tone-fixing bath solution and then the patient stands upon the paper for a couple of seconds. The paper is then exposed at once for a few seconds to bright sunlight which rapidly develops a picture which is not only clean-cut in its outline but in its delicate and ultimate refinements like skin-furrows, pores and the like. The picture is then put into the tone-fixing bath and treated exactly as any ordinary copy would be finished. It may then be dried and added to the history. Such an impression excels the carbon-record very far in cleanliness, definition and simplicity of production. A large variety of easily obtainable chemicals may be substituted for the soda solution with entire success. If the foot is sweaty, that alone will change the bromosilver film of the celluloid paper. Instead of this kind of paper ordinary Prussian blue paper may be used as a cheaper substitute. With this dilute vinegar is used to dampen the foot and then after the impression is made the paper is put into water at once, instead of the light, then dried and put into the history. Some of the details are lost in this simple procedure but for most orthopedic work will be found quite sufficient. What has been said about impressions of the sole applies also to those of the hand.

**A Rational Incision for Whitlow.**—Neatness and rapidity are aims sought during an operation, if they can be realized together with the minimum of scar afterward, three all important desiderata will have been reached. Operations about the fingers usually permit of rapidity of execution; but, unfortunately, the other two requirements are too little heeded. A. REVERDIN of Geneva recommends the following rational incision for whitlow. Ordinarily the focus of disease is approached by the middle line. The result is either a tender scar upon the palmar surface interfering with the grasp, or a contracture which also results in loss of function. In order to avoid these complications of the cure Reverdin enters a long, straight, slender bistoury transversely at the base of the phalanx, transfixes and cuts outward close to the palmar surface of the bone, so that the ball of the finger makes an anterior flap, which when retracted exposes the diseased bone *in toto* for removal. This is easily accomplished. The wound passes through relatively healthy tissue, heals therefore more quickly and more firmly, with less scar and no possibility of contracture. Drainage is easy through it near the base on one side or the other, and a couple of sutures secure good approximation.

**Amputation Stump Covered with the Tendon of Achilles.**—Aseptic and antiseptic methods have aided surgeons in undertaking plastic methods which would otherwise fail. Dr. WILMS of Leipsic (C'blatt f. Chir., 1902, No. 27) describes an amputation stump capable of bearing pressure and covered with the tendon of Achilles. Bier has recently opened the discussion of this entire question by his recent admirable paper on the subject of making osteoplastic flaps with which to cover the ends of the bones. Wilms differs in some particulars from Bier, notably wherein the lat-

ter teaches that it is not possible to cover the bones successfully in amputations in the leg by soft-tissue flaps which lie between the skin and the bones and protect the skin from attrition. Bier moreover claims that the usual case will permit one to produce hypertrophy of the skin by massage and use. Wilms' observation is that where there is only skin over the bone atrophy is far more apt to occur through mere pressure. In a sixteen-year-old boy Wilms recently amputated the leg about a hand's breadth above the malleoli and by saving the tendon of Achilles was able to bring it forward over the ends of the bones and stitch it to the anterior surface of the tibia, where it stayed in place very well. The patient was discharged at the end of four weeks with a very excellent stump, capable of bearing pressure and entirely without tenderness. Wilms suggests that a similar use of this tendon and its muscle may prove to be the means of very greatly increasing the general function of all amputation stumps in the leg.

**Diagnosis of Carcinoma of Large Intestine.**—Since a surgical intervention alone offers hope for cure the early diagnosis of cancers of the colon is especially desired. If a middle-aged individual who has formerly always shown well-regulated intestinal function, gives evidence of an increasing irregularity of stool, interrupted by periodical attacks of colic with or without obstruction, he should be looked at with suspicion even if there is no cachexia or change in the general health. Another symptom upon which F. CRAMER (Münch. med. Woch., June 17, 1902) lays much stress, is the appearance of frequent, small hemorrhages, especially if complicated with increasing tenesmus. Care must, however, be taken to rule out lesions of a benign character in the rectum, such as hemorrhoids by a careful proctoscopy. Abundant hemorrhages with irregular intestinal peristalsis are also alarming, but, in order to place the lesion in the colon, the blood must appear fresh or clotted. The attacks of colic may be absent; when present they may appear as from a clear sky or may be preceded by prodromata such as constipation, anorexia, tympanites with eructations, vomiting and general malaise and sometimes fever. Frequently, high enemata remove the obstruction and with it the symptoms, but the free intervals become shorter and soon the general system will suffer and with it a tumor will be felt. When no colics are present, the growth does not encircle the gut but involves it in a more superficial manner. It is important to remember that certain toxins, as nicotine, may cause similar attacks of colic without any lesions in the intestinal wall. Another very important sign of tumor is intestinal erection which enables one to see and even to palpate the contracted gut and often to differentiate whether the large or small intestine is involved, though it is generally impossible to say from it in which part of the colon the trouble lies. Auscultation should not be neglected; on carefully listening to the abdomen a sound as if water were poured on the floor is often heard and of great value in that it is pathognomonic for stenosis, though not necessarily for carcinoma. Subjectively the most distressing sign is the tenesmus, provided the growth is sufficiently near the anus. A rectal examination is generally of more value than a palpation in narcosis, since here deep respirations are impossible and the tenderness of any locality cannot be ascertained. Great attention should be paid to the bloody excretions from the rectum as particles of the tumor may sometimes be voided; at all events one should always try to find the origin of the hemorrhage by means of Kelly's speculum, the patient being placed in the gynecological position after a rectal irrigation. On the whole, the type of hemorrhage is that

of a slight oozing, repeating itself daily, but exceptionally, enormous amounts of blood may be voided. Oftentimes the blood is intermingled with purulent matter. The ribbon or ball-shaped feces that most writers lay so much stress upon is not of so much importance as the other symptoms and is not caused by the stenosis but by the contraction of the lower rectum and the sphincter ani. Lastly, it is in place to mention two more signs: the cachexia, which may be absent even in advanced cases, and the tumor, which may disappear, if caused by stagnant feces and not by new growth.

**Morphine Scopolamine Narcosis.**—A series of 130 cases in which the anesthesia necessary to perform large operations was produced by injections of morphine and scopolamine are reported on by B. KORFF (Münch. med. Woch., July 8, 1902), and on the whole his impressions are very favorable. The most agreeable part of the narcosis is that instead of the malaise, vomiting and pain in the wound seen after ether or chloroform, a long, refreshing sleep generally sets in which considerably favors primary union. The ether spray may be resorted to for the skin. The best way to administer the two alkaloids is as follows: Four hours before the operation 0.01 morphine and 0.0012 scopolamine are injected. Half an hour prior to this a fluid breakfast may be given. Two hours later a second injection of the same strength is made, and a third half an hour before the operation. Especial care must be exercised that the tongue does not fall back and only in one instance were there untoward symptoms in the form of a mild heart-collapse which rapidly vanished after two hypodermics of camphor ether.

**Treatment of Tetanus.**—The results from the use of the tetanic antitoxine have been rather disappointing, for the percentage of cures has been very small and there seems to be much uncertainty in regard to the amount of serum which is necessary in any particular instance. K. E. KELLOGG (N. Y. Med. Jour., July 12, 1902) shows that the two indications in the treatment of tetanus are: (1) The destruction of the toxine-producing germ, and (2) the neutralization of this toxine after it has once entered the system. He believes that carbolic acid is the drug par excellence in accomplishing these objects. The amounts injected and its effects can be controlled by noting its physiological action. After the parts have been thoroughly incised and, in case of sloughing, the edges excised and all pockets opened and thoroughly irrigated, a 0.5 per cent. watery solution of carbolic acid should be injected in a circle around the wound. If general absorption has already occurred it is better to make these injections along either side of the spinal column, and during the first few days from two to four grams may be injected every three or four hours. If any symptoms of poisoning are observed the carbolic must be cut down. Furthermore, this method of treatment has the advantage of not neutralizing any possible benefit that may be derived from the antitoxine treatment.

#### NEUROLOGY AND PSYCHIATRY.

**Treatment of Early Mental Cases.**—Many of the forms of mental disease are aggravated, especially if of functional type, by improper treatment in their early stage, when carefully adapted management should be applied to each case. F. S. FOOGOOD (Lancet, July 12, 1902) discusses this subject and reaches the following conclusions: Like the experience of Raw and Springthorpe who recently published a classic paper on this paper in the Lancet, this author's observation has recognized many individuals whose temporary insanity disappeared after a few days of well-chosen treatment. Some patients recovered their mental poise with the

removal of abdominal tumors, others with the cure of various bodily affections, and the vast majority of these temporary cases, after the alleviation of alcoholism. This he concludes is the most prolific single cause in this class of mental disease. Delirium tremens is the most familiar form, and is usually accompanied by signs of alcoholism at the time of the onset. There are also patients who without showing any symptoms of actual alcoholism do suffer from its ravages in the nervous system. Dementia is the next most frequent form with its well-known symptoms. Cure usually is complete in from one month to six months. Mania may have its origin directly in alcoholism or may follow delirium tremens and dementia. Sensory disturbances are also very common, especially of hearing, smell and taste, less frequently of sight. His confidence in the curability of most of all these cases led him to request the authorities to permit hospital-ward rather than asylum treatment. There is a provision of the British Poor Law permitting a two weeks' observation of any case of supposed insanity, if desired, prior to committing it to an insane asylum. The doctor has availed himself fully and systematically of its terms during the past three years and has found that fully two-thirds of the patients do not require commitment, but are cured by ordinary hospital care. The stigma of having been to an insane asylum is very real, reacting upon all by preventing permanent and lucrative employment wherever the patient is known and upon the women by rendering them ineligible to marriage in the popular view. He has therefore induced the authorities to permit hospital observation of these unfortunates before pronouncing upon their hopeless insanity. Padded cells and mechanical restraint he has found to be rarely necessary. The presence of these temporarily insane patients in the hospital general or special wards affords an opportunity for their observation which the medical student would otherwise not have.

**Santonine for Tabetic Crisis.**—The obstinate and fulminating character of many of the crises of tabes dorsalis has made the prevention and the control of their pain matters of extreme importance to the patient and his physician. About a year ago G. Negro of Turin described his rather satisfactory results after the administration of santonine in a total daily dose of 0.15 grams, usually divided into three exhibitions. COMBEMALE and CHABERT of Lille have carried these observations forward and have administered this drug as a curative agent to nine tabetics of whom five showed marked improvement in the intensity of the pain. They have asked themselves the question whether it would not serve as a preventive measure given in the total daily dose of 0.15 gram at intervals of, say, ten days. They differ from the original reporter, Negro, in that they do not limit the administration of the drug solely to the time of the crisis but have continued its course for even twenty days consecutively. It is true that like Negro they have feared toxic and accumulative effects and therefore slowly decreased the daily dose to 0.05 gram during such courses. Yellow vision, however, has never failed in their observation to occur just prior to poisoning and to be a reliable signal for stopping the drug. Both of these observers conclude, however, that the best method of administration is the full daily dose of 0.15 gram at the earliest possible moment of the crisis, so as to secure prompt sedation. They have also given this drug in seven cases of ordinary neuralgia without any amelioration whatever.

**The Topography of the Internal Capsule.**—The intimate anatomical relations of this part of the brain to other important tracts and centers at or near the base render it a field for constant researches whose



final outcome will be of course material additions to our present anatomical and physiological knowledge. P. MARIE and G. GUILLAIN (*La Sem. Méd.*, 1902, No. 26) have been investigating this matter recently and embody their observations in the following brief terms: The internal capsule in man can not be described as an exclusively sensory territory and just as in the case of intense cortical and capsular lesions hemianesthesia may be entirely or partially absent. The motor path in the internal capsule occupies the posterior portion just to the level of the posterior angle of the lenticular nucleus. In this so-called lenticulo-optic tract, in which descend all the motor fibers, it is impossible to distinguish clinically the paths of the nerve-bundles to upper extremity, arm, leg, foot, etc., in man, although Beevor and Horsley and various pure anatomists teach otherwise. All of the motor fibers which descend at this point, are dependent the one upon the other by their numerous collaterals. Basing their opinions upon cases seen Marie and Guillaum think that no lesion, however small it may be, can possibly break up this association of these fibers. Any miliary deposit, small hemorrhage, limited softening, or the like located at this point of the lenticulo-optic territory must necessarily involve a hemiplegic syndrome. This clinical fact is a corollary of the anatomical arrangement of the parts. A lesion limited to the internal capsule is followed by a descending degeneration of the entire area of the pyramidal tract in the bulb and the cord. They insist upon the application of these principles solely to man and emphasize the fact that they have been deduced by the anatomo-clinical method. If no regard is paid to the results of laboratory study of this region of the brain in animals and only the anatomo-clinical method (applied to man alone) be used, wide differences will be found between the conclusions of these two methods. Upon the latter basis alone it is possible to state that no constant segmentary arrangement of the internal capsule can be outlined.

**Hebephrenia.**—A case of this rather rare form of neuropathic insanity is described by W. R. DAWSON (*Dublin Journal of Medical Science*, July, 1902). The patient, a lad of nineteen years, had always been solitary, had lived alone in lodgings, and had practised self-abuse for about two years, though not to excess. For some months he had been depressed and felt that his appearance was changing for the worse. One day he threw himself into the sea with suicidal intent but changed his mind and swam out again. He showed little reticence in speaking of the matter or of his self-abuse, but was very miserable and suspicious, thinking that everything was being done to annoy and torture him, and that his sisters were not really related to him, etc. About ten days after admission to Farnham House, with tonics, cold baths and attention to the bowels he began to cheer up, but developed a neurotic tendency to bursts of causeless laughter. In about six weeks his delusions had practically disappeared.

One's general impression was that the mental symptoms were in many respects like an exaggeration of the frothy emotionalism, introspection and self-centredness of puberty, which had been thrown late in his case. The relation of hebephrenia to paranoia is interesting. The resemblance is considerable, but it would rather appear that whereas paranoia consists in a sort of gradual and progressive hypertrophy of certain peculiarities of the individual, hebephrenia is essentially a hypertrophy of the peculiarities found at a particular period of life in almost all individuals, and is, therefore, related to imbecility.

**Multiple Neuritis.**—In typical cases of neuritis we have a symmetrical localization of motor, sensory and

vaso-motor symptoms. In the earlier stages the symptoms are those of irritation, while later they are those of destruction. Very few cases are at all typical in their symptomatology, however, and hence the various mistakes in diagnosis. D. R. BROWER (*Med. Rec.*, June 21, 1902) points out that either the motor, sensory or vaso-motor symptoms may predominate. As an example of the distinctly motor type he mentions lead paralysis and tetany; of the sensory type, pseudo-tetanus and leprosy; of the vaso-motor type, erythromelalgia and Raynaud's disease. The usual form of multiple neuritis is due to alcohol and is, ordinarily, of the mixed type. The onset is commonly insidious, the earlier symptoms being numbness, tingling, cold and clammy hands and feet. Pain and tenderness soon follow, and the early appearance of the reaction of degeneration is a valuable aid in diagnosis. The escape of the muscles of the trunk and the control which the patient has over the sphincters are points of assistance in excluding myelitis. Psychic symptoms are parts of the general alcoholism. Arsenical neuritis may usually be diagnosed by the absence of alcoholic symptoms, by the edema of the eyelids, epigastric distress and nausea. The knee-jerks and superficial reflexes may be present in arsenical neuritis of moderate grade. In lead neuritis there are two common types, the lower arm (wrist-drop) and the upper arm types. Landry's paralysis in its typical form has sensation intact and sphincters uninvolved. It is characterized by a rapidly advancing paralysis beginning in the legs and extending upward. In the acute stage the treatment consists of rest and a rational elimination of the toxic substance which has acted as a cause. The micro-organisms which are most apt to cause a neuritis are those which induce diphtheria, typhoid fever, influenza, leprosy and beriberi. In the chronic form one should not get discouraged even if results are not gratifying, for persistence with electricity and massage with attention toward the general improvement of the physical condition will usually be rewarded by satisfactory results in the end.

**Spastic Spinal Paralysis.**—The existence of a spinal form of family spastic paralysis, as distinguished from the cerebral form, has been much disputed. An interesting series of cases is reported by W. G. SPILLER (*Phil. Med. Journ.*, June 21, 1902) in which the disease occurred in fourteen members of a family extending over four generations. The onset was usually early, about the fifth year, though one became affected at 18 months. Females and males were about equally affected and the same symptoms presented: spastic paresis of the lower limbs, with contractures and exaggerated reflexes of these limbs.

**Conjugal General Paralysis.**—Five cases of general paralysis occurring in both husband and wife are reported by P. KEREVAL and G. RAVIART (*Arch. de Neurol.*, June, 1902). The principal etiological factor found in these cases was syphilis, but it was not present in all the cases, some of these being attributed to alcoholism, cranial traumatism, heredity and certain moral factors that puzzle the clinician. In the first case there was a history of syphilis in both husband and wife; in the third case, of alcoholism. In the fourth case neither syphilis, alcoholism nor trauma was found in the husband's history, while the wife attributed her disease to worry and misery. In the fifth case heredity was the etiological factor in the husband, while in the wife the disease seemed to be due to grief over the condition of the husband. Apart from these factors that lie at the basis of the appearance of general paralysis in husband and wife, the authors believe that the appearance of the disease in both members is not to be considered a simple coincidence.

**Innervation of Lachrymal Gland.**—Owing to the great difficulty of experimentation some doubt has always existed as to the innervation of the lacrimal gland. The painstaking work of G. KOSTER (Arch. f. klin. Med., vol. 72, Nos. 3-6) makes it probable that besides the facial, the sympathetic sends fibers to the gland, and that there exists a condition analogous to that of the salivary glands which are supplied by both a medullated and a non-medullated nerve. Further work, however, is strongly indicated to determine if both nerves act upon the secretion of tears or if they antagonize each other in action.

**Pathology of Chorea Minor.**—Autopsy on cases suffering from chorea are rare, and occasions to examine the condition of the nervous system for lesions but seldom present themselves so that the disease is generally looked upon as a neurosis. The more interest must attach itself to the article of M. REICHARDT (Deutsch. Arch. f. klin. Med., vol. 72, Nos. 5 and 6) who records distinct change in the line of inflammation, hemorrhage and degeneration of nerve-fiber. The inflammation was characterized by perivenous, round-cell infiltration involving almost the entire brain and only in one place assuming macroscopic proportions. The seat of the most marked change was the Sylvian aqueduct and the visual ganglia in one case and in another the subcortical layers. The hemorrhages were better visible to the naked eye and corresponded in position with the inflammation, but the fatty degeneration of the nerve-fiber had an independent seat in the posterior parts of the internal capsule and in the lateral region of the pulvinar, while in the spinal cord the nerve-roots and the fibers in the anterior and lateral horns were affected. The bacteriological examination was negative in one case, and doubtful in another where staphylococcus aureus was found in the blood, but an endocarditis also existed. The chorea-bodies and multiple emboli which have been described as characteristic for chorea were not found in the observed cases, which seems to strengthen the view that chorea is due to the toxins of bacteria.

**Narcolepsy.**—A case of the interesting condition known as narcolepsy is described by L. LOWENFELD (Münch. med. Woch., June 24, 1902). Since first discussed by Gelineau some twelve years ago, little attention has been directed to this peculiar pathological state which is characterized by frequent and short periods of sleep, generally induced by some emotional strain. There also is present considerable restriction of the locomotor functions. There most likely exists some change in the nervous system in the nature of a neurosis since structural changes are improbable. The patient was considerably improved under hypnotic suggestion.

## THERAPEUTIC HINTS.

**Acute Exudative Nephritis.**—Delafield says: The way we manage these patients is to put them to bed or keep them in the house till the nephritis has run its course. They are kept on fluid diet, preferably milk, and the skin of the entire body is cleaned once a day. For many cases no other treatment is necessary. If vomiting is troublesome it can usually be controlled by adding cerium oxalate and sodium bicarbonate to the milk. For the restlessness and sleeplessness chloral hydrate, the bromides, or opium may be employed. If the nephritis is of severe type, the patient is wrapped in a blanket wrung out of hot water and kept in it for one hour once or twice a day. In addition we give one drachm (gm. 4.0) of sulphate of magnesium every hour until the patient has taken eight doses or the bowels move, or calomel gr.  $\frac{1}{4}$  (gm. 0.015) every hour for six

doses, or till the bowels move. This is followed by one or two minims of tincture of aconite every hour. Throughout the disease we watch the pulse, and, as soon as it shows any increased tension, give chloral hydrate in doses of from two to five grains every three hours. If severe headache, muscular twitchings, or general convulsions occur, to most of the patients we give chloral hydrate, gr. v-xx (gm. 0.3-1.3) by rectum, or nitroglycerin gr.  $\frac{1}{100}$ - $\frac{1}{50}$  (gm. 0.003-0.0012) hypodermically, or morphine gr.  $\frac{1}{10}$ - $\frac{1}{5}$  (gm. 0.006-0.01) hypodermically. In strong and robust adults with a good deal of venous congestion, general blood-letting may be advisable. For the relief of the convulsions urethane in solution, in repeated doses up to 100 grains (gm. 6.6) in twenty-four hours, is said to be of service. As the nephritis subsides the milk is gradually replaced by solid food, and iron and oxygen are given.

### For Tape-worm in Infants.

B Cupr. oxid. negr. .... gram. 3.0 (gr. xlv)  
Cretae prep. .... 1.0 (gr. xv)  
Pulv. agarici .... 6.0 (3iiss)  
Glycerin .... 5.0 (gr. lxxv)

M. et ft. 50 pil. Give two twice a day for fifteen days, then gram 10-15 (3iiss-3ss) of castor oil.—FILATOFF in Progrès Médical, June 28, 1902.

**Food of the First Infancy.**—Although in almost all cases, writes P. BUDIN (Le Progrès Médical, July 5, 1902), mother's milk is the desirable food, yet it does not guarantee perfect safety for the child, and the nursing must be supervised. Some women have too much milk and it flows very freely, hence too abundant and too rapid feeding by the child. Others in their desire to satisfy the child, give the breast every time the infant cries and thus overfeed. Others again have milk that is too rich, resulting in diarrhea, eczema, etc. If one has a weakly infant too free feeding brings on vomiting or diarrhea, and too little feeding induces attacks of cyanosis; so the author reports below the amount of woman's milk found just suited to the development of infants according to weight, without producing any untoward symptoms. Of infants during the first ten days, those weighing 1800 grams (60 oz.) or less, require, on the second day, 115 grams, on the third 160, and through the succeeding days to the tenth, 210, 225, 250, 280, 285, 310, 320 grams of mother's milk. Infants weighing 2200-2500 grams (72 to 84 oz.) require on the second day 180 grams, and 236, 295, 335, 370, 375, 385, 415, and 425 grams on successive days. After this the infant's food should be about one-fifth its weight of mother's milk. When the weakly child is too feeble to nurse, we put large infants at the mother's breast, and these by energetic suction, facilitate the flow of milk. When the breast milk becomes insufficient we give sterilized milk at the end of each nursing. This is better than to alternate with each nursing, for a rest of four or six hours leaves the breast too long without excitation. The greatest fault of artificial feeding is in giving too much, the children developing indigestion, large belly, eczema, etc.

### Naphtol Camphor.

B Betanaphtol pulv. .... gram 4.0 (3i)  
Camphorae pulv. .... 8.0 (3i)

Triturate till the mixture liquefies. This preparation is recommended as an application for suppurating eruptions, excoriations, wounds, cicatrices, and as a counter-irritant.—DESEQUELLE in Le Progrès Médical, June 14, 1902.

### Ointment for Rheumatism.

B Acidi salicyl.  
Ol. terebinth.  
Lanolini aa. .... gram 10.0 (3iiss)  
Adipis .... 90. (3iiij)  
—BOURGET in Le Progrès Médical, June 21, 1902.



# THE MEDICAL NEWS.

A WEEKLY JOURNAL  
OF MEDICAL SCIENCE.

COMMUNICATIONS in the form of Scientific Articles, Clinical Memoranda, Correspondence or News Items of interest to the profession are invited from all parts of the world. Reprints to the number of 250 of original articles contributed exclusively to the MEDICAL NEWS will be furnished without charge if the request therefor accompanies the manuscript. When necessary to elucidate the text illustrations will be engraved from drawings or photographs furnished by the author. Manuscript should be typewritten.

SMITH ELY JELLIFFE, A.M., M.D., Ph.D., Editor,  
No. 111 FIFTH AVENUE, NEW YORK.

Subscription Price, including postage in U. S. and Canada.

PER ANNUM IN ADVANCE . . . . .	\$4.00
SINGLE COPIES . . . . .	.10
WITH THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES, PER ANNUM . . . . .	8.00

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in registered letters.

LEA BROTHERS & CO.,  
No. 111 FIFTH AVENUE (corner of 18th St.), NEW YORK.

SATURDAY, AUGUST 30, 1902.

## RECIPROCITY AND MEDICAL EXAMINING BOARDS.

It is very generally conceded that the time has come for the mutual interchange of such courtesies among the medical examining boards of the various States as would permit of the acceptance by one of licenses issued by another without the formality of a renewed examination. There is an impression abroad that this friendly mutuality—a consummation devoutly to be wished—would be accomplished with much less delay than now seems probable but for the opposition, overt or covert, of certain of the present members of examining boards or of those who foresee the pleasant possibility of becoming members.

It is well understood that many of those who are fortunate enough to receive appointments as State medical examiners are closely in touch with the powers political that be and that the exertion of their influence in opposition would be sufficient to delay, at least for no inconsiderable time, any legislation looking to interstate reciprocity of licensure to practise medicine, however desirable it might seem to the profession at large.

The members of the medical profession must appreciate very highly how much those who have been most interested in medical regulation legislation and the establishment of State medical examining boards have accomplished for the uplift-

ing of the profession in this country. Many of them have been veritably unselfish benefactors of their colleagues in their work and true humanitarians in the imposition which they have saved the general public. It would be too bad then to think of them as permitting selfish motives to intrude on their work now that so much good has been accomplished. The further extension of present advantages in the regulation of medical practice is surely to be found along the lines of interstate reciprocity.

The profession at large recognizes this fact clearly, and its members are not quite persuaded of the good faith of many of the reasons given for delay in its accomplishment. Technical difficulties of no real importance are apparently exerting most of the influence that keeps the State boards of neighboring States having practically the same requirements for licensure from the establishment of reciprocity. There is special danger of the present legal conditions, with complete absence of reciprocity, working to the serious disadvantage of the practitioner who has been for some years in successful practice in one State and wishes for good reasons apart from monetary considerations to take up his residence in another State. Cases have been brought to our notice in which very worthy members of the profession, of whose capability there could be little doubt, were compelled to put off for long periods legal registration in another State than their own because of failure to pass examination required. This failure was largely due to the fact that during the years of practice much of the readiness for answering questions in theoretic medicine acquired by cramming for examinations while at the medical school had been dissipated by attention to applied medicine. Such a state of affairs may work a serious injustice in particular cases without any corresponding benefit for the common weal to justify it.

One of the complaints that are constantly repeated with regard to the questions asked by State board examiners at recurring examinations is of the tendency to include certain questions of very limited practical importance and which can scarcely be considered as more than "catch questions." We appreciate how difficult it is to select questions that shall be suitable to the mixed classes who come up for examination. We understand very well, too, that a celestial inquisitor would fail to satisfy all comers by his selection of examination questions. There is no doubt, however, that at least some questions asked each year in many

States are open to legitimate objection because of abstruseness and lack of practical importance. It is, of course, much easier to rate a paper for a missed question than for one answered, and practical questions often involve longer answers than those on theoretical points, but it is scarcely possible for us to be persuaded, despite assertions to the effect, that such considerations have any weight in the selection of questions.

There are then certain abuses being perpetuated by the present system of individual State examining boards that call for a gradual reformation both as regards separate State requirements and examining methods. The members of the profession who have been foremost in securing our present legal status must take up the question of the further advances now become necessary, for to stand still, as is so often said, is inevitably to go back. Most of these men are themselves members of State medical examining boards or closely in touch with them and must not allow their very nearness and personal interest in the work to obscure the defects still manifest in the existing system. The medical profession naturally looks to them for the initiative to further progress in the introduction of measures and methods for the amelioration of present conditions.

#### THE PASSING OF OSBORNE HOUSE.

THE disposition which King Edward has made of this historic mansion in the Isle of Wight is one which at this time will appeal with the greatest force to his subjects, and one that will do much to endear him to them. As Prince of Wales he was always popular and beloved, and this generous deed in the early days of his reign, indicative as it is of appreciation of those whose health and strength have been so freely given to sustain his empire, seems as if it were a direct continuation of one of the strongest traits of Victoria—a warm and personal interest in the welfare of those who served her.

The palace, too, is one that is particularly and peculiarly associated with the late Queen. It was here that the early days of her married life were spent, and the romance of the woman, unquenched by the fierce light that beats upon a throne, found full expression in a marriage that has become historical in its happiness. There is something pathetic in the loving, tender interest she took in the place itself, endeared to her as it was by memories of the past; nor can we wonder that when bowed by the weight and cares of the longest and most successful reign that

England has ever known, she should have gone back to die where all the earlier associations of the wife and mother outweighed the later pomp and dignity of the queen.

So it seems all the more appropriate that the invalid officers of the Army and Navy who began their lives in "Her Majesty's Service"—and many of whom have come so near to ending it there—should find rest and recuperation within the old gray walls and on the shady walks the Queen loved so well; and many a war-worn veteran will feel that he has not been forgotten and passed over, or left naked to his enemies in spite of the zeal with which he served his king.

On the other hand the ides of the millennium have neither come nor gone, and the rulers of those countries who show the greatest care and solicitude for the personnel of their armies and navies are certain to command the best of service in the days of their greatest need.

At all events it will give a quietus to the newspaper reports and *on dits* of the past year, which declared that it was the intention of the King to sell the place to some American millionaire, and that it was only the clause in his august and royal mother's will by virtue of which Osborne House and the immediate estate became "the appurtenances of the sovereignties of Great Britain" that prevented the transplantation of the joyous marigold and the retiring aster of the "States" to the beds of the classic roses of England.

#### CREMATION AND PUBLIC HEALTH.

THE importance of the more general adoption of cremation in disposal of the dead was emphasized a few weeks since by the heavy rains in New Jersey. The daily papers reported with gruesome details the washout of a cemetery, the exposure of many bodies, and even the carrying away of some of them by the rushing waters after a severe rain-storm. Accidents of this kind are of course rare, but they illustrate dangers to health that exist constantly and are as constantly ignored by the public. The presence of the bodies of those who have died from infectious diseases may at any time for many months, or even many years, after burial be the cause of further spread of the fatal infection.

Pasteur demonstrated many years ago that sheep allowed to graze upon portions of a meadow beneath which at the usual depth the bodies of sheep that had died from anthrax were buried contracted the disease. Sheep allowed to feed on other parts of the same field for pur-



poses of control did not die. It was shown that the anthrax bacilli were brought to the surface of the meadows in the bodies of earthworms.

It is well known that in moist ground bacteria of various kinds may be carried long distances in subsoil water. Floods such as have occurred in many places throughout the country during the past summer may at any time prove an active distributing agent for infectious material deposited in the earth not far from the surface. With the modern demand for water supplies, the placing of graveyards in localities even apparently remote from centers of life does not guarantee the perfect seclusion of dangerous material that is necessary for hygienic safety.

The process of cremation is only a compendium of the ordinary chemical and biological processes that bring about decay of the body. Oxidation of the component elements with their return to the common storehouse of nature for further use takes place in an hour instead of many months. The lack of familiarity with the idea of fire in this connection makes the method seem something deterrent to nature. There is no doubt, however, that the process is more hygienic, and as our population becomes more congregated into crowded centers, there is greater necessity than ever of forestalling any and every possible danger to public health. At the present time there is need for the creation of a conservative public sentiment in favor of cremation, and physicians should realize that it rests with them to point out the evils of the older system of disposal of the dead.

## ECHOES AND NEWS.

### NEW YORK.

**Official War on the Mosquito.**—In an endeavor to exterminate the mosquito throughout the whole of New York, Ernest Lederle, President of the Board of Health, has commenced a campaign that may last for four years. Dr. Lederle has concluded after many tests that oil will stay the breeding of mosquitoes only for a few weeks. In all boroughs now are large supplies of kerosene and oils of different kinds which anybody can have upon applying to the Board of Health's representative after showing that there is an infested pond or pool in the neighborhood. This oil has already been found to be most effective in Staten Island and in Queens, especially near Rockaway and Arverne. But experts realize that after the oil has disappeared from the surface of the ponds mosquitoes will come again. Five bacteriologists are now at work with instructions to report on the difference between the *Anopheles* and the *Culex* in their habits. These are the two kinds of mosquitoes—the *Anopheles* being poisonous and malaria-bearing and the *Culex* being declared harmless.

**Transportation of Trachoma.**—Commissioner of Immigration Williams is much disturbed over the dis-

covery that the Ellis Island medical staff found nearly 100 cases of trachoma among the steerage passengers on the French Line steamship *La Gascogne*, which arrived here Monday. Trachoma, it will be remembered, became epidemic last spring in the public schools of the city, so that the Board of Health went to the length of appointing a special commission to investigate its extent and distribution. Among the immigrants mentioned 85 cases in all are diagnosed as trachoma. Of this number 65 came over on *La Gascogne* and 20 on the *Zeeland*. About one-third of these may be released later if it is proved that they are not diseased. The people affected are Syrians, Rumanians, and Austrians, principally Syrians. The only punishment that can be inflicted on the French Line for bringing such an unusually large number of diseased persons to this country is to send the immigrants back at the expense of the company. New immigration laws, not yet through Congress, contain a clause expressly designed to cover just such cases. It gives the Commissioner power to impose a summary fine on any steamship line attempting to bring a diseased alien to any of the ports of the United States. The wording of the proposed statute is so broad that if it becomes operative no line will be likely to take the risk of bringing over such a large number of undesirable passengers in one ship.

**The Tunnel and Public Health.**—The Board of Health this week sent to the Rapid Transit Commission a report of Charles F. Roberts, Sanitary Superintendent, showing that the conditions existing in the excavations are in many places a menace to the health of persons living along the line of the tunnel. The unsanitary conditions mentioned were disconnection of sewers, stagnant water, the escape of sewage, the use of the excavations as dumping places, and the prevalence of foul odors. The report is a summary of the reports of various inspectors, and covers conditions in the whole length of the tunnel. Already, President Lederle said, separate action was being taken by the Board against individuals among the tunnel contractors who were guilty of maintaining nuisances, but it seemed well to the board to put the Rapid Transit Commission in possession of the full facts, so that that commission could see to it that its contractors conformed strictly to the terms as to sanitation which were no doubt included in the contracts. If the commission took no action in the matter, President Lederle said, he would proceed at once against the individual contractors. Dr. Lederle went on to say that, in his opinion, most of these nuisances could and should be abated by the police. Attention was also called to the clause suggested by the Mayor as a part of the contract for the Pennsylvania Railway Tunnel, giving the Board of Health charge of the maintenance of sanitary conditions in the contemplated excavations. Such a clause, Dr. Lederle thought, ought to exist in all contracts made by the city for work of that character.

### CHICAGO.

**Health Department's Warning on Typhoid.**—A campaign of education in matters of hygiene and sanitation is always to be commended and encouraged, whether a disease epidemic exists or not. It is largely through such literature as the health department of Chicago has been circulating that the death rate of this city has been reduced below that of any other large city in the world. In the present epidemic of typhoid there is urgent need of very thorough publicity on the question of preventive measures against this dangerous malady. It is gratifying to note that the health department is meeting that need promptly and to the full extent of the facilities placed at its disposal. While it is perfectly

obvious that the discharge of sewage into the lake is a menace to the public health, it is equally clear that the present epidemic of typhoid in Chicago cannot properly be attributed to water alone, for the disease is alarmingly prevalent in many other cities, some of which are widely separated from one another, and it has attacked households which have made it a practice for years to boil or filter the hydrant water if they use it at all. The opinion is expressed by physicians outside the health department that much of the trouble is due to the condition of vegetables this year, and the health department is treating the obviously unfit vegetables in the carts of cheap peddlers to doses of kerosene. Naturally the peddlers protest, but the work of the department is most decidedly in the line of good public policy.

**Infected Vegetables Seized in the Ghetto.**—Inspectors of the health department made a tour of the Ghetto district on the West Side to look for vegetables and fruit contaminated with disease germs. The six milk inspectors were used for this work, and a large number of specimens were obtained. After sampling the disease-infected fruit and vegetables in a dealer's stock, the health officers sprayed kerosene oil over all the rest of it, so as to make it unfit for sale. This course was pursued with all material exposed for sale and found to be contaminated. "The taking of the milk inspectors from their regular duties," said an officer of the health department, in telling of the tour of inspection, "was no loss to the health of the public, for the fruit and vegetable question is at present much more important than the milk question. Bad milk can be readily detected and dumped into the sewer, but the suppliers of bad fruit and vegetables need a lesson, which they got to-day. The work will probably be continued, not only in the Ghetto district, but everywhere that bad stuff is sold. The Ghetto district was selected because of the prevalence of typhoid fever in it of late, and the fact that the vegetables supplied to it are largely grown on a farm fertilized with night-soil, north of the city."

#### GENERAL.

**Belgian Surgical Congress.**—This congress will be held in Brussels, September 8 to 10, 1902. Plans for the formation of an International Surgical Society will then be formulated.

**Vaccination in France.**—The French Parliament has approved the sanitary law rendering vaccination compulsory. The law reads, "Vaccination is obligatory during the first year of life, and revaccination during the twenty-first year. Parents and guardians are held personally responsible for the execution of the measure."

**Lecture by Professor Osler.**—Dr. William Osler, of Johns Hopkins University, Baltimore, will deliver a memorial address on "William Beaumont, the First and Greatest American Physiologist," under the auspices of the St. Louis Medical Society. The address will be given at the Odeon, St. Louis, Mo., Oct. 4th, at 8 P. M. Beaumont, it will be remembered, was an army surgeon who studied gastric digestion through a traumatic gastric fistula in a man named St. Martin.

**Foreign Epidemics.**—The Exchange Telegraph Company publishes a dispatch from Simla, British India, saying that the plague mortality is increasing at the rate of 1,000 weekly. News received from Barbados declares that the smallpox epidemic on that island is spreading in spite of the efforts of the medical authorities to check it. Doctors of Barbados anticipate terrible developments in the spread of the disease. Vaccination has been adopted, but general consternation prevails. Interisland trade has been crippled in consequence of the establishment of quarantine against Barbados.

**A Physicians' Trust.**—The Medical Alliance of America, a foreign corporation, has been licensed in Indiana. It is a Canadian concern, and its method of operation is novel in the extreme. For a stipulated sum, which is to be made nominal, the company guarantees to furnish all the medical attention required during the year for a family. The patrons of the alliance may select any physician they choose, and they may call on him for services as often as they like. For their payment to the company the physician's fee will be taken care of by the alliance. The company keeps up its end of the bargain with physicians by taking them into the alliance.

**Medical School for the Navy.**—Surgeon-General Rixey believes that newly appointed assistant surgeons of the navy should receive a special training before they are assigned to active service. Plans are now under consideration for the establishment of a school for this purpose, in connection with a new naval hospital to be located on the site of the Naval Observatory in Georgetown. The medical school will really be an adjunct of the hospital, though no new buildings will be needed for that purpose. While newly appointed assistant surgeons are required to be graduates of medical colleges, they have never had training in the work of the navy, such as the keeping of the medical journals aboard ship, nor have the young officers had much experience in bacteriological and laboratory work. To supply this deficiency will require several months of special instruction. The first step in this direction has been the issuance of orders to the Medical Examining Board at New York to come to Washington and constitute the faculty of the new school.

**Koch and Garnault.**—The Berlin correspondent of the Figaro has succeeded in making Prof. Koch break his long silence in reference to the various attempts to disprove his theory of the non-transmissibility of bovine tuberculosis to human beings. The interview is interesting because it shows that what has been popularly accepted as Prof. Koch's theory is not exactly correct, a fact which may easily be verified by reference to the original "Vortrag." The correspondent of the Figaro went to see the German savant to ask his opinion of the experiments carried on by Dr. Garnault of Paris. Dr. Garnault cut his arm and covered the wound with a cataplasm taken from the diseased part of a cow's lung. After having exposed himself to what, according to his version, Prof. Koch considered imminent danger, the French physician tried to interest Koch in the experiment. Failing in this, he published an article in the Figaro, promising to follow it up by others in the Neue Freie Presse of Vienna, showing that Prof. Koch had admitted by his silence that his theory was incorrect. Indeed, the French medical press even announces a book on the subject.

In reply Prof. Koch said: "I consider Dr. Garnault's experiment not only worthless and unscientific, but also absolutely without danger. In order to prove or disprove anything, Garnault ought to have inoculated himself with a pure culture of bovine tuberculosis matter. In this way he would have infused millions of bacilli into his system. This was the course adopted by Prof. Baumgartner, who vaccinated a number of patients dying of cancer. They were not infected with tuberculosis, although it is admitted that both diseases can exist at the same time in the same body. This question should be left to the men of science. In England, America, Germany and other countries serious investigations are being carried on by commissions, and it may take years before a final decision in the matter is reached. I am also continuing my experiments, but do not rush into public print with my results, as Dr. Garnault, hank-



ering after theatrical effects, has done. In due time I shall publish my conclusions. The opinion which I defended at the congress in London I still adhere to. I would like to call attention to the fact, however, that I limited myself to the expression of a theory which had previously been advanced by American men of science. The public has voluntarily accorded me the honor of parentage. But let us get down to facts. I never said that infection was impossible; all I maintained was, that it could hardly have serious consequences. I further said that bovine tuberculosis could not be transmitted into the human system by means of milk. Milk is no infective medium, as little for tuberculosis as it is for rabies. This is an accepted theory. Still, has anybody proved it? I admit that I, for one, am still in doubt. At the same time I insist that infection through milk is so rare that I consider it foolish and extravagant to compel the world to sacrifice millions every year for useless preventives. Would it not be better to erect sanatoriums with this money?"

**Cholera in the Philippines.**—Discouraging reports are received by the War Department at Washington of the increase of cholera in the Philippines. The health service of the Manila city government is overwhelmed with the work that has fallen upon it, and the health officials in all the interior towns are in the same plight. The epidemic is not confined to the low-country towns, but has been under headway in Dagupan and the mountain towns north of there for a month. An efficient system of reports has been maintained, and the authorities know what they have to contend with. The number of deaths in the provinces ranges from 350 to 450 daily. The beginning of the rainy season makes the danger greater, as the streams carry the cholera germs everywhere, and spread the disease. There are on an average from 50 to 70 new cases daily in Manila, and nearly as many deaths. There are many cases on the ships in the bay, and this is an increased cause of danger, as the quarantine authorities cannot get at them, and violations of the health regulations are constantly occurring. The worst occurrence is the death of natives who have crawled off uncare for, and have died in out-of-the-way places. It is a common thing to find bodies of victims floating in Pasig River, and in one day recently six such bodies were fished out. The disease has in a number of cases broken out on ships that have been in close quarantine for several days. It is said this is due to using the water of the bay, which is very impure. The ships have condensers, but few distil the water and so remove all danger of infection.

**Obituary.**—Dr. W. F. Hendrickson, instructor in pathology in the University of Pennsylvania, died August 23 at the Union Protestant Infirmary in Baltimore. Dr. Hendrickson was born in Baltimore, and was but twenty-six years old. He was a son of the late William F. Hendrickson. He was graduated at the Johns Hopkins University in 1896, taking high honors. Then he took up medicine in the medical school of the university, and obtained his degree in 1900. He went to the University of Pennsylvania soon afterwards. Dr. Hendrickson was called to California on one occasion, and on another to Des Moines, Iowa. He also was invited to teach further north.

Dr. Aaron Friedenwald, an eminent physician and noted philanthropist, of Baltimore, died of cancer August 26, aged sixty-five years. Dr. Friedenwald was a son of Jonas Friedenwald, a philanthropist. He studied abroad, and was a pupil of Virchow. Since 1873 he had been a member of the faculty of the College of Physicians and Surgeons. He was a member of the medical and surgical faculty of Maryland, of which he was president. He was the

first president of the Maryland Ophthalmological Society, and was a foremost member of the American Medical Association. In 1863 Dr. Friedenwald was married to Miss Bertha Bamberger of Baltimore. His children are Drs. Harry and Julius and Messrs. Norman and Edgar Friedenwald.

## CORRESPONDENCE.

### TRANSACTIONS OF FOREIGN SOCIETIES.

#### GERMAN.

CORRECTION OF SADDLE-NOSE BY PARAFFIN INJECTIONS—DIFFERENTIAL DIAGNOSIS OF EPILEPSY AND HYSTERIA—PATHOLOGICAL ANATOMY OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM—ARTIFICIALLY PRODUCED DISEASES OF THE MIND—ECLAMPSIA AND BLOODLETTING—THEORY AND THERAPY OF TABES DORSALIS.

THE various scientific societies, local and national, of the German Empire are usually very busy during the last quarter of their scientific year, just before the summer vacation. The subjoined important sessions occurred and the best papers are abstracted as follows:

MANN, at the Gesellschaft für Natur- und Heilkunde zu Dresden, March 1, 1902, read a paper on the correction of saddle-nose by the subcutaneous injection of paraffin accompanied with demonstrations. If vaseline at the body-temperature and the consistency of ordinary salve, made fluid by heat, is injected into the subcutaneous tissue in man with a Pravaz syringe there will result at the point of injection a more or less round tumor in size according to the quantity of the paraffin ointment employed. The secondary reaction in the tissues is hardly worthy of note and the mass injected remains usually enlarged at the point of entrance. Various authors within the last few years have discussed this subject, notably, Gersuny, in 1900, contributed "Concerning a Subcutaneous Procedure" in the *Zeitschrift für Heilkunde*. He describes in this paper his treatment of a young man who had been castrated on both sides on account of advanced tuberculosis of the testis. This patient was anxious to cover his defect in order to engage in the military service. This was accomplished by the subcutaneous injection of paraffin. The same author also reports a case in which he secured improvement of speech by making injections beneath the gums, and in retracted scars of the skin, like sunken cheeks, saddle-nose, defects over the brain, from scar-tissue, etc. And similarly he suggests that this paraffin injection process will be found available in various grades of incontinence in hernia, in plastic work following amputation of the breast. In 1901 Luxemburger reports in the *Münchener medicinischer Wochenschrift* two cases of hemiatrophy of the face progressive in type, in which he corrected more or less successfully by Gersuny's method the cosmetic results of the disease. Stein in von Bergmann's clinic has also corrected saddle-nose with success and damage to the gums after operations upon them in the same manner. Moszkomicz and Sachs both report cure of syphilitic saddle-nose in this manner. Basing his conviction on these reports Mann attempted with considerable success to correct saddle-nose in three cases of syphilis. Although in his cases the results were not by any means ideal the improvement was sufficient to illustrate the point that this may be found after improvement in the technic has been made a very serviceable means of curing this condition. He also honestly reports the causes of his partial failures in these cases in the following terms: The operation is simple enough. The needle of the Pravaz syringe is placed into the root or tip of the nose and carried downward or upward, as the case may be, to the point of greatest deformity.

and then under suitable pressure the paraffin is deposited about this point. The amount, of course, to be injected depends entirely upon the degree of the deformity. Pressure on the injected mass to make it conform with the outlines of the normal nose is then made under an ethyl chloride spray. Instead of a single deposit beneath the skin it is probably better to make a number of them side by side. The great importance of making pressure for resistance against the undue spread of the paraffin is shown by the fact that in one of his patients the material traversed upward to the forehead and made there a most undesirable tumor mass. The skin here had to be opened, the mass turned out and then the injection repeated. At this operation it was easy to demonstrate masses of paraffin as they lay in the spaces of the subcutaneous tissue. It is necessary to make this whole procedure very aseptic. The natural sequence of the injection is commonly a little burning, redness, and feeling of pressure at the point. During the same day, however, these symptoms usually disappear. Concerning the possible toxicity of paraffin injection Myer has contributed the results of experiments which show that very large deposits of paraffin, even to the making of a mass the size of a breast, can be carried out without harm, although occasionally symptoms may arise. In the correction of saddle-nose such poisonous results are not at all to be considered. However, both Lesser and Schaeffer suggest that it is well to first aspirate the region and then to inject. What in the course of time becomes of this deposit of paraffin within the body must be left entirely to the future. This much is known, that for a few years there is apparently no change whatever within it. Probably after a longer time it will be found necessary to make secondary injections in order to fill in the gaps between those of the primary process. However, up to the present time it is evident that this method of correction is exceedingly serviceable, and can, aside from a few technical difficulties, which are surmountable, be recommended for general use.

HOCHE, at the twenty-seventh annual meeting of the South-German Neurologists and Psychiatrists, read a contribution on the "Differential Diagnosis between Epilepsy and Hysteria." Both of these diseases may be considered neuroses. Pure hysteria is of functional nature in the sense that we do not know at the present time and probably will never know any definite pathological basis for it. Epilepsy, on the other hand, undoubtedly possesses a true anatomical basis, but we do not know anything about it at present. The differential diagnosis between these two diseases becomes above all other cases difficult when each is accompanied by loss of consciousness during a seizure. In the majority of these cases one who has had sufficient experience finds little difficulty in judging the true condition present. In a selected few cases there is not enough about the characteristic attack to make the diagnosis certain. There is no single symptom which is absolutely distinctive of epilepsy, not even a bitten tongue and changes in the reaction of the pupil to light. The hysterical fixation of the pupil is not due to a disturbance of the reflex arc, but to an abnormal state of the internal eye muscles. As an element in the extreme difficulty of making a differential diagnosis the existence of a true hystero-epilepsy must not be overlooked. In doubtful cases only observation of the case will settle the matter.

ERN of Heidelberg presented the following data as to the "Pathological Anatomy of Syphilis in the Central Nervous System." He made the following classification: (1) A group of cases in which there may be found definite changes in the central nervous system,

such as myelitis meningitis, myelitis arteritis, localized and diffuse degenerations, and yet nothing which may be regarded as typically syphilitic; (2) definite primary lesions of the central nervous system or diffuse degenerations which partake of a truly specific character. In addition to tabes dorsalis, there may be found meningitis, alterations in the blood vessels, gummata and similar conditions; (3) primary sclerosis without truly specific characteristics and without other specific lesions in individuals who are certainly syphilitic, also a class of lesions in the various systems of the body. About 70 to 90 per cent. of all tabes dorsalis belong to this group. The lesions of this third group are not to be considered as properly postsyphilitic, but as truly syphilitic as the typical changes.

BLUM of Frankfurt gave the results of experiments upon dogs in which psychical diseases had been artificially produced. He found that a pure milk diet prevented the rapid advent of death. The animals, however, showed various disturbances of the psychical state, namely, hallucinations, biting the air, efforts to stand on their head, scratching of the nose and similar characteristic actions. Death always followed after bodily and further psychical depreciation.

THIELE, at the Medicinische Gesellschaft in Chemnitz, April 16, 1902, read a paper on "Eclampsia and Bloodletting." After a brief review of the modern notions of the pathogenesis and treatment of this disease, the author reported four cases in which he obtained remarkable results from phlebotomy. Three were cases of puerperal eclampsia after parturition. He finds that judicious bloodletting frees the heart from its burden, stimulates the blood-producing organs to great activity and promotes perspiration to a remarkable degree. In eclampsia gravidarum he found exceedingly prompt results follow its use, cessation of the seizures, return to consciousness, sweating, and disappearance of albumin after one or two days.

H. HAENEL, at the Gesellschaft für Natur- und Heilkunde zu Dresden, April 12, 1902, contributed a paper on the "Theory and Therapy of Tabetic Ataxia." Up to the present time, excepting the clinical characters of the disease and its pathological anatomy, the entire question of treatment has remained open because usually the results of treatment are not good. Frenkel has, however, for the first time evolved a new method of treatment on rational lines and built it up rationally. His treatment by manual and podalic practice tactics was evolved from his notions of the ataxic elements of the disease. From the fact that a co-ordinated movement necessarily requires some relation with the outside world, it follows that it really depends upon a centripetal impulse, namely, upon sensibility. The arguments which have been urged against the theory of a sensory basis of the ataxia are really three: The occurrence of ataxia without any damage to the sensibility; the disturbances of sensation without ataxia and the indefinite and deficient parallelism of both conditions in a large number of cases. Through thorough methods of examination and a full valuation of the various kinds of sensibility, especially sensibility of the joints and muscles, the various complicated relations are to be explained in the compensatory application of contraction in disturbances of the joint sensibility, of the attitude of the trunk and pelvic muscles in standing and walking, etc. It then becomes more evident that co-ordination is to be explained as a sensory function. The conditions of a rational treatment of locomotor ataxia are that the central nervous system shall be capable of receiving impressions and then by practice evolving the centrifugal impulses which by degrees become more efficient to cause co-ordination. In this manner the maximum amount of co-ordination is grad-



ually produced. In an ataxic the co-ordinated movements are produced exactly as in the healthy individual, namely, all possible resources called into play, especially the sensory functions of the organs of sense, and particularly the eyes.

## SOCIETY PROCEEDINGS.

### AMERICAN PROCTOLOGIC SOCIETY.

*Fourth Annual Meeting, Held at Saratoga Springs, New York, June 10 and 11, 1902.*

#### FIRST DAY—JUNE 10.

The Society was called to order in the parlors of the United States Hotel by the President, Dr. Thomas Charles Martin of Cleveland, Ohio.

**Dietary in the Treatment of Rectal Diseases.**—Dr. A. P. Buchman, of Fort Wayne, Indiana, said that beginning with hemorrhoids and ending with proctitis, catarrhal or otherwise, the whole pathological ensemble is primarily referable to what has been over a long time, and what is now daily ingested in the food supply. Indigestion, even in its most elementary state, is overlooked and underestimated. Digestion is not fermentation. It is a process of decomposition of molecular particles and a recombination of chemical elements by which toxins and toxic substances are formed. Carbon dioxide in excess in living tissue for too long a time will produce paralysis as to function, and finally organic disintegration. Catarrhal proctitis is often many feet away from the point treated. Give well regulated diet for chronic constipation. Internal hemorrhoids disappear under palliative treatment and regulated diet. Regarding the intestinal tract as a single organ he spoke of the difference between digestion and fermentation. By scientific dietary regulation certain surgical procedures in this field can be reduced to the smallest common multiple. Writer reported cases. Conclusion: If the dietary care of patients were prescribed with the same accuracy and care that is carried out along drug and surgical lines, the value of the method would not be the subject of so much neglect as it is at the present time.

Dr. Samuel T. Earle of Baltimore called attention to the fact that we should reflect in these cases before resorting to the operation.

**Diagnosis and Treatment of Proctitis.**—Dr. Howard A. Kelly of Baltimore remarked that the special importance of the subject alluded to lies in the fact that the affection is, for the most part, unrecognized and so allowed to run a chronic course. The local symptoms are often vague and in women they give rise to a disease of the uterus or ovaries. Some of its symptoms are decidedly serious in character, such as the poisonous character of the mucous secretion of the bowel. When associated with other pelvic diseases, it is apt to be overlooked. Cause is generally obscure. The better recognition of these affections hinges on the diagnosis. If such a case is examined per vaginam, empty rectum feels like a flattened fibrillated cord, easily rolled from side to side. Details of pathology were given and topical and dietary and drug treatment and massage recommended.

#### Some Unusual Causes of Proctitis and Diarrhea.

Jas. P. Tuttle of New York said that almost all forms of proctitis are associated with diarrhea, excepting atrophic catarrh. Most types occur in tropical regions and are due to specific micro-organisms. Treatment: Prolonged rest in bed and irrigations with fluid extract of krameria in irrigation solutions. Diet of milk and meat exclusively was followed by improvement.

**President's Address.**—Dr. Charles Martin of Cleveland spoke on the Relation of the Rectal Valve to Obstipation, a clinical research. A glance at his table

presented showed that of 40 cases operated prior to two years ago, two were not improved; one had no complications discoverable; the other was subject to recurrent invagination of the sigmoid to the rectum; five patients were improved; three of these had complications; one of these had gonorrheal peritonitis and malignant disease of the cervix uteri. Another has been twice subjected to laparotomy and had Maecel's diverticulum removed and oophorectomy performed, and the third had movable right kidney and an ovarian tumor. Of the six patients who suffered recurrence of obstipation, three were those whose condition after operation had been improved only; of the remaining three recurrences, one had been subjected to hysterectomy, and of the other two (cases 15 and 26) I have not been able to get a report. In a total of 40 cases, five were improved and 33 cured.

**Treatment of Hemorrhoids.**—Dr. George J. Cook of Indianapolis said that in 1876 Andrews of Chicago gave statistics which were obtained directly from advertising specialists, showing that in 3200 cases of hemorrhoids treated by injection of caustics there were 13 deaths due directly to treatment, besides eight cases of embolism of the liver, 10 cases of dangerous hemorrhage, numerous cases of severe pain, abscess, fistula and ulceration. Since that time there has been no evidence to indicate that better results have been obtained. A report of six cases of deaths due directly to this treatment is given covering the past 18 months. All were treated by advertisers but subsequently came under the care of regular physicians from whom reports were received. In every case an abscess formed as the result of the injection and septic infection followed, resulting in death in from six to ten days. In one case was pneumonia; in another thrombus of the hepatic vessels. Many of the bad results following this treatment are attributed to the methods of injection. Having the piles protruding through the anus and then injected when the vessels were distended with blood is bad practice, because when the tumors are replaced much of the coagulated blood is forced from the pile tissue into the surrounding vessels and may cause abscess or sloughing. The better method is to use the tube speculum, and after the blood is pressed out of the tumor inject the caustic, thus avoiding the formation of blood-clots in the vessels. Many cases were treated in this way with only two unpleasant results. In these cases there was secondary hemorrhage which was easily controlled. This method of treatment is advised only in cases where a general anesthetic cannot be administered. The treatment of piles by injection is the most dangerous method in use, as is shown by statistics. The relief in the majority of cases is temporary, averaging about four years.

In discussion Dr. J. M. Mathews of Louisville said that the proctologists should either endorse this treatment or denounce it. In his infirmary to-day are two women, one of whom was treated for three weeks in New York by the injection plan. She does not seem to have any hemorrhoids. On examination he found a hole in the gut. Another woman had the same injection plan and the same result. He has seen two cases of violent hemorrhage endangering the lives of the patient and has also seen much injury done, so that he does not believe it a rational treatment, as it is so easy to establish a dangerous condition. Moreover it is not so radical a cure and endorses quick treatment. We can very well see that by injecting a tumor of this kind an artery may be injected and a thrombus established. As the author said, he would only use it where it was dangerous to give an anesthetic; he thought cases were often chimerical. They have given ether or chloroform where they have had heart murmurs.

Dr. Geo. B. Evans of Dayton, Ohio, said that in 11 years he has never injected a single pile. It is not radical. He was influenced to take this stand by Kelsey, Tuttle and Mathews in 1891. Fully 50 per cent. of the cases have previously had the carbolic acid treatment. These cases had some kind of fistula or fissure, and he prefers keeping his hands off the hypodermic.

Dr. L. H. Adler of Philadelphia was in favor of the treatment. Some patients absolutely refuse to have an operation performed, and he thinks the profession entirely wrong in condemning the method *in toto*.

Dr. J. Rawson Pennington of Chicago said that in his estimation there are too many "I thinks" and "I guesses" in medicine. The quack discovers or originates some method, and the profession condemns it and then takes it up. He had had little experience with carbolic treatment, but on general principles he did not like it. Others may have had good results with it but he gets the best results with the clamp and cautery and the ligature.

Dr. George J. Cook in closing the discussion said he used the injection method as a last resort. When he does it, he injects only one pile at a time.

#### SECOND DAY—WEDNESDAY, JUNE 11.

**Causes and Treatment of Rectal Abscess.**—Wm. M. Beach of Pittsburg stated that the location of an abscess is usually definite and circumscribed about the rectum by the limits of the pelvic fascia and integument. There are the marginal and deep seated varieties. The ischio-rectal is one of the latter. Trauma, mechanical, chemical, thermic, secondary processes, bacteriologic, such as gonorrhea, syphilis, tubercular, bacillus colon communis, zymotic diseases and idiopathic, seem to be the exciting causes which vary according to the location of the pus areas. As soon as pus is determined freely evacuate it. Introduce intestinal antiseptics and apply cold. Never poultice.

Dr. James P. Tuttle of New York said that the prompt and radical treatment of this inflammatory condition around the rectum is perhaps the means of preventing rectal diseases. Four out of five fistulae can be avoided if the perirectal inflammatory condition is treated in the beginning.

**Treatment of Rectal Fistulae.**—Dr. Floyd W. McRae of Atlanta advised treating fistulae by excision of the entire fistulous tract, bringing the raw surfaces together by sutures with a view to securing healing by first intention. Many cases and authorities were cited. This method of procedure saves the victims of this disease an enormous amount of suffering. Has had very good success. Operation described and two cases reported.

In discussion, Dr. J. Rawson Pennington of Chicago, described a modification of this operation, and Dr. S. T. Earle of Baltimore thought that Dr. Pennington's idea was very much more difficult than that of the author. When a fistulous tract is laid open it is not difficult to find the openings of other tracts. Dr. George J. Cook of Indianapolis said that Dr. Morris of New York always filled the fistulous tracts with plaster of Paris and then dissected the whole thing out. The president, Dr. Martin of Cleveland said that patients who are stout should not be selected for this operation. Patients who have a thick pelvic floor are not good subjects for this operation. Where there is much induration he advised taking baths for some time, so that the induration will be lessened. Traction is made on the fistulous tract by means of a forceps and over the ischio-rectal space a broad adhesive band of T bandage is placed.

Dr. McRae in closing the discussion said he thought that Dr. Pennington's method a great deal more difficult. Where there is more or less retention of pus it

is unfavorable for treatment. The real points of merit in this method are the laying open of these tracts and cleaning each one separately and a thorough dissection of all the indurated tissue.

Dr. J. Rawson Pennington presented pathological specimens showing various valves of the rectum.

**Excision of the Cancer of the Rectum.**—Dr. Lewis H. Adler of Philadelphia called attention to the importance of this subject. The disease in the rectum has no marked manifestations, until the trouble has progressed to such an extent that complete ablation of the growth is impossible. The author antagonizes any and all attempted excisions of the rectum for malignant disease. To assume such an attitude would be the height of folly; it would consign the patients to certain death. The author has had some 217 cases, and of this number has excised the rectum in three, curetted the growth in seven and colostomized 27. Relative to the three cases of excision, one patient died within the year following operation of cancer of the liver; another died five years after the excision at the age of 77 years, and at the autopsy no trace of the disease was discoverable—death being due to senility; the third patient is still alive and active—though past 70 years of age—the operation having been performed six years ago. Cancer of the rectum at the stage usually discovered by the surgeon, is less amenable to the knife than cancer in other portions of the body. Operation is followed by cure in a very small proportion of the cases, and the dangers following excision are great, and the results as to comfort anything but satisfactory; yet in cases seen early, much good can be accomplished by the operation.

**Colotomy Complicated by Tumors.**—Dr. B. Merrill Ricketts of Cincinnati said colotomy may be attended with many complications, due to benign or malignant neoplasms. He reported two or three complicating cases. Hernia may complicate hydrocele, aneurism, adhesions, and cysts are frequently found by the surgeon in colotomy.

Dr. J. Rawson Pennington of Chicago described a case of a malignant growth of the rectum on which a colostomy was done and the X-ray later used. For a period of five months no pus has been seen. The patient had violent pains in the legs and abdomen which disappeared after the X-rays had been used. Dr. L. H. Adler of Philadelphia in closing the discussion said that all patients gained in weight, sometimes as much as 25 pounds. He also called attention to the fact that cancer was very prevalent in the sooty regions of our country.

**Treatment of Hemorrhoids by Enucleation.**—Dr. Geo. B. Evans of Dayton said that there are two classes of internal hemorrhoids, the capillary and the venous. Capillary is in reality a rectal tumor. Case described. Does not believe in tamponing, nor the use of the Pennington plug. In this operation, as in all others for hemorrhoids, we fail to find an ideal one. In its application, it is no doubt restricted. In cases in which the varicosities are comparatively accessible, when from any reason there is no bowel paresis and the plug can be placed securely and remain for a time, thereby insuring protection from hemorrhage and infection, it is no doubt a very agreeable and satisfactory operation to both patient and operator; but it seems likely that it would be difficult to be able to determine in every instance in which apparent weakness of the operation may manifest itself. Eleven successful cases reported.

Dr. William L. Dickinson of Saginaw, Mich., expressed surprise at the two bad results of this operation. He packs all his cases with iodoform gauze coated with sterilized vaseline. Dr. J. Rawson Pennington of Chicago said that a hemorrhoid is an angioma, a diseased



condition in the submucosa. He expressed considerable surprise at such unfortunate results with this operation. In 225 cases he had only two hemorrhages. The patient can usually get up four days after operation. Dr. Geo. B. Evans in closing said that in his case the bleeding vessel could not be found; it was behind the tampon. He likes this operation very much better than the clamp and cautery.

**Report on Ulcerations of the Rectum.**—A complete pathologic report was carefully gone over in detail by Dr. S. T. Earle of Baltimore.

**Some Interesting Cases of Rectal Diseases.**—Dr. Louis J. Krouse of Cincinnati presented some very interesting facts of rectal diseases, one of abscess, one of ulceration with cicatrices, and one of ischio-rectal abscess.

**Election of Officers.**—The following officers were elected to serve the ensuing year: President, Dr. Samuel T. Earle, Baltimore, Md.; Vice-President, Dr. Floyd W. McRae, Atlanta, Ga.; Secretary and Treasurer, Dr. William M. Beach, Pittsburg. Executive Council: Dr. George J. Cook, Chairman, Indianapolis, Ind.; Dr. Lewis H. Adler, Philadelphia, Pa.; Dr. Thomas Charles Martin, Cleveland, Ohio.

Adjourned to meet at the time and place of the American Medical Association.

#### NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

*Stated Meeting, Tuesday, July 8, 1902.*

The President, Wendell Reber, M.D., in the Chair.

**Some Unappreciated Causes of Anemia in Childhood.**—Dr. W. C. Hollopeter read a paper on this subject in which he commented upon the fact that the period of primary dentition was often a time of ill health, which was frequently complicated by improper food, and sooner or later results in disturbance of the child's blood, producing marked anemia. After making brief reference to the anemias of acute diseases and specific blood changes, the author stated that he believed dental decay, with consequent pus formation and septic involvement of the alimentary tract, was the foremost cause of anemia in children and that most frequently overlooked by the general practitioner, although it is pretty generally recognized by the pediatricist. Too often the care of the first teeth is neglected, resulting in hyperemia of the aural cavity, with numerous alveolar abscesses and the consequent passage of pus into the stomach. With the teeth in this condition proper mastication is impossible, which results in derangement of the gastro-intestinal tract and general catarrhal inflammation, producing irritability, and laying a foundation for anemia that requires years of correct living to rectify. The difficulty of curing gastro-intestinal catarrh, should it reach the chronic stage, was commented upon, and the value of preventing the occurrence of this condition emphasized, which it was thought could only be accomplished by much medication, careful regulation of the diet and régime and careful toilet of the teeth. The period of second dentition was thought to be a time of great risk as the nervous system is unstable and particularly liable to be affected. Among the conditions remarked as a result of the neglect of the teeth were stomatitis, ulceration, sloughings, gangrene, pyorrhea alveolaris, periostitis, alveolar abscesses, necrosis, recurrent tonsillitis, pharyngeal otitis, glandular inflammation, cellulitis and possibly meningitis. The opinion of a former coroner of this city that 50 per cent. of all the deaths of children coming under his observation were due to aural sepsis was quoted. A second fre-

quently unrecognized factor is mouth breathing, due to nasal stenosis following whooping cough, measles, influenza, resulting in catarrhal inflammations and hypertrophied turbinated tissue, serving to block the channel, which is indicated by the flattened chest, vacant look around the mouth, due to a deficiency of oxygen causing anemia. The value of careful toilet of the nose and throat during the disease in order to prevent these conditions was remarked. As a third causative factor was mentioned eyestrain, especially during school life, and which is often due to poor print and defective light and ventilation. The opinion was expressed that many of the conditions of so-called headache, catarrh of the stomach and nausea were really due to eyestrain and the reason that better results were not secured in treatment was owing to therapeutic measures being directed to the manifest symptoms, while the real cause of the condition was unsuspected. In concluding the author stated that he believed a sepsis of the mouth was of as much importance to the physician as was a sepsis of the surgeon.

Dr. E. E. Graham in opening the discussion stated that he felt in considering anemia in children, we should take into consideration the fact that the composition of the child's blood is very different from the adult's, the proportion of the white blood corpuscles in the former being far in excess of that in the latter. It was also believed that in anemia there are substances in the blood intimately associated with many diseases. While splenic enlargement is an important factor in the diagnosis of anemia in the adult, cases have been observed among children in which this organ was markedly increased in size, where the anemia was but moderate. In regard to secondary anemia, the speaker stated that he believed almost any disease was sufficient to produce a certain amount of anemia in a child, which he attributed mainly to two causes: (1) decrease in the production of blood, caused by poor food, improper hygiene and poor assimilation; and (2) increased destruction of the blood cells, which is particularly exemplified in nephritis, diphtheria, tuberculosis and cases of chronic suppuration and effusion, especially pleural effusions, citing a case in which three pints of pus had been removed by means of the aspirator, in which the anemia was as marked as in a case of pernicious anemia. In all such cases of anemia, the hemoglobin is proportionately and in some cases more reduced than the red blood cells, and leucocytosis may or may not be present. In the treatment of the condition it was considered important to treat rather the cause of the disease than the disease *per se*, and prophylactic measures to prevent the development of the cause, such as correct hygiene and diet, were recommended. Iron and arsenic were regarded as the most valuable drugs. The prognosis was felt to depend upon the age of the child and the cause, the younger the child, the graver the prognosis. While dentition *per se* was not regarded as a very important factor in the production of anemia, it was felt that the escape of pus from the gastro-intestinal tract into the stomach and the consequent irritation of the gastro-intestinal tract, would account for a large percentage of the cases.

Dr. E. W. Tully emphasized the value of discovering and treating the cause of the anemia rather than the manifest symptoms, and stated that he believed in many cases there were several causes. Among the causative factors were mentioned adherent phimosis, dentition and eyestrain.

Dr. Howard S. Kinne felt that while no doubt anemia was frequently caused by catarrhal conditions, it was highly probable that in a certain proportion of the cases the order was reversed and the anemia acted as the inducing agent in producing the catarrh. Iron was thought

to be indicated and the peptomanganate of iron was felt to be the preferable method of administration, being more palatable and equally efficient with the other preparations.

Dr. Daniel Longacre felt that the escape of illuminating gas from the mains might be responsible for a certain proportion of the anemic cases.

Dr. Samuel Wolfe stated that while he recognized the value of proper preservation of the teeth, and felt that carious teeth and bad hygienic conditions of the mouth were no doubt responsible for some of the anemias in childhood, still he believed that in many instances an impaired and defective condition of the blood resulting from heredity or any other cause often led to decay of the second teeth. He felt that in the treatment of these conditions while proper hygiene of the mouth and teeth would prevent a portion of the vicious circle, we must go deeper into the cause of the condition in order to bring about a rapid cure, particularly in cases resulting from eyestrain, phimosis, defective nutrition and metabolism, which fact was substantiated by the frequent occurrence of anemia in children with defective vitality and weakened conditions. Malaria was also felt to be a frequent cause, and should be considered in all cases.

Dr. H. Brooker Mills stated that he believed faulty dentition as a cause of anemia should be divided into three classes: (1) absorption of pus, due to suppuration of the gums; (2) indigestion, due to insufficient mastication, which is in turn due to bad teeth; and, (3) indigestion, due to insufficient mastication, when the teeth are good; the speaker felt that the larger proportion of the cases came under the latter class. A case was cited in which the patient had died of auto-intoxication due to constipation, which was attributed to indigestion due to faulty dentition or rather improper use of the teeth, which were in good condition. Another case was noted in which gradual bleeding from the gums (presumably due to some purpuric condition), produced very profound anemia finally resulting fatally. Eyestrain and mouth breathing were regarded as frequent causes of anemia and in many instances correction of these conditions had relieved the other symptoms.

Dr. Carl Lee Felt stated that he believed obstructed nasal breathing played an important part in the production of anemia, and while in many cases operated on for adenoids no adenoids were found, the anemic condition of the patient was markedly improved by the removal of the hypertrophied tissues. Faulty dentition and carious teeth were also felt to play important rôles in this direction, and in the majority of such cases the anemia is aggravated by bad hygienic and dietetic surroundings.

Dr. William H. Good felt that fermentation going on in the mouth caused by constant eating, especially of sweets, was responsible for the production of a certain amount of the dental caries, and that if these dietary indiscretions were corrected, it would prevent the formation of the conditions in the mouth and gastro-intestinal tract.

Dr. Wendell Reber stated that while he did not feel eyestrain was responsible for the proportion of secondary anemias which are sometimes accredited to it, yet he believed that in a child with a weak visual apparatus subjected to the conditions present in the ordinary schoolroom, secondary symptoms, such as headache, nausea, dizziness and vicious appetite, are apt to be produced, which are frequently in conjunction with anemia; and very often the correction of the ocular condition will be followed by a disappearance of the other symptoms.

Dr. Hollopeter in closing stated that he had in mind dental caries in relation to second dentition, rather than

primary dentition as a causative factor of anemia, and he also felt that neglect to use the teeth was probably a more important point than was generally recognized.

#### THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

*Eighth Annual Meeting Held in Washington, D. C., June 2, 3 and 4, 1902.*

Charles W. Richardson, M.D., of Washington, D. C., President.

##### FIRST DAY—MONDAY, JUNE 2.

The meeting was held in the Cosmos Club, and was opened by an Address of Welcome, by Dr. George M. Sternberg, Surgeon-General of the United States Army. He welcomed the society to Washington as a center of scientific work, and to the Cosmos Club, of which he is the President, as the center of scientific work in the city. He said that he was glad that physicians in Washington were recognized, as they should be, as true men of science.

**President's Address.**—Dr. Charles W. Richardson of Washington, D. C., delivered this address. He dwelt upon the university and scientific life of Washington, and the congenial surroundings for scientists. Touching upon the methods of teaching the specialties in medical schools, the opinion was expressed that the plan of compelling instruction in the special as well as in the other branches had led to undue crowding of the curriculum, and had been disappointing in its results. The instruction in the specialties, he thought, should be so planned as to supplement rather than to supplant the major branches, of which they form an integral part. Attempts to turn out full-fledged specialists should be promptly checked. Theoretically, the elective system was ideal, yet the tendency in undergraduate life was towards too great narrowing by the elective system, and he thought in the long run the elective student would be overtaken and passed by those who had received a broader education. In the opinion of the speaker it was best to develop the specialist by post-graduate teaching founded upon a broad general education in medicine. Speaking of the condition of the society, the President said that there were now 233 names on the roll, and that the section meetings had been better attended than in former years. A new departure had been made this year in the conduct of the annual meeting by establishing a pathological exhibit.

**Aural Bougies.**—Dr. George L. Richards of Fall River, Mass., said that a few years ago he had spoken about the use of aural bougies for the relief of earache and otitis externa. He now desired to exhibit these bougies, which he had had made. They could be done up in tin-foil or dispensed in lycopodium powder. After dipping in warm water they are inserted in the external auditory canal. They are composed of morphine, atropine, cocaine, carbolic acid and gelatinoglycerine. The following is the formula, which is a modification of those introduced by Gruber: Carbolic acid,  $\frac{1}{16}$  minim; fluid extract of opium,  $\frac{1}{16}$  minim; cocaine,  $\frac{1}{4}$  grain; atropine sulph.,  $\frac{1}{16}$  grain; enough water, gelatin and glycerine to make a proper mass which will readily dissolve at the body temperature. These bougies are the size of a quill and half an inch long. In his experience, earache had been aborted by this means in considerably more than one-half of the cases occurring in children.

**Exfoliation of External Auditory Meatus—Fibromyoma and Foreign Body.**—Dr. M. D. Lederman of New York presented several specimens. The first was a specimen showing exfoliation of the external auditory meatus, occurring in a long-standing suppurating case.



On removing a polypoid formation this mass had been found lying loose in the canal. After it was removed the discharge stopped in a comparatively short time. The second specimen was a large fibromyxoma which could not be removed by the snare, but required evulsion. Suppuration ceased after removal of the growth without any secondary applications. The growth was attached to the attic and though a large perforation of the drum existed, it healed over under antiseptic treatment. The third specimen was a foreign body for the removal of which several unsuccessful attempts had been made by others. By taking off the auricle the body was removed, and the auricle was then sutured back in place. The pebble could not be seen through the external canal, as the inner third of the canal was filled with granulation tissue, which surrounded the foreign body. The probe detected a hard substance through the granulation tissue. Attempts were made to remove the stone through the canal but the pebble had formed a cavity from which it could not be dislodged. After displacing the auricle and removing the granulation tissue, the stone was extracted with a dull wire curette; a large perforation in the posterior inferior quadrant existed together with a dislocated malleus which was also removed under antiseptic treatment; healing of the membrane resulted in four weeks with good result.

**Points of Prominence in Treatment of Catarrhal Deafness.**—Dr. Sargent F. Snow of Syracuse, New York, read this paper. He believed that in chronic cases a good prognosis was warranted in many more cases than it is now given. The secret of success was often to be found in the relief of a constitutional condition, by which the Eustachian tube is kept occluded. The best treatment was the introduction of air under pressure, saturated with gum camphor and iodine, through the Eustachian tube into the middle ear, but such treatment was out of the question until patency of this tube had been secured. The modern tendency to coddling and improper personal hygiene were serious obstacles to the successful treatment of these cases. Wool and linen mesh were the best material for the undergarment. The living rooms should be well ventilated, and cold baths should be taken regularly. In the few cases in which such baths seem impracticable or undesirable, a partial substitute would be found in brisk, dry rubbing of the skin with a harsh towel. The functional activity of the liver must be maintained.

Dr. C. R. Holmes of Cincinnati said that personal experience had showed him that woolen underwear was not the best for the catarrhal subject. Most persons lived in overheated rooms. They could not remove heavy undergarments without trouble or possible danger, while it was very easy to regulate the protection of the body by using light underwear and varying the weight of the outer clothing. He had many times taken persons, both old and young, out of flannel underwear in mid-winter without any serious inconvenience. During the past year he had adopted the plan of printing rules and detailed instructions for regulating the living of these patients. If the patient would not in this way help the physician the local treatment would avail very little.

Dr. C. Dunbar Roy of Atlanta, Ga., thought that no fixed rules could be laid down which would be applicable to individual cases. He believed that woolen underwear should not be worn in the winter; the same weight of underclothing should be worn both summer and winter, the changes being made in the outer clothing. The nose was often operated upon when it could not relieve the condition of the ear. Because one nostril was stenosed was no reason for believing that the deaf-

ness would be relieved after the removal of the nasal obstruction. He preferred the use of a solution of menthol and iodine in albolene to the use of vapor in the Eustachian tube. He always made use of a solid silver catheter bent each time to adapt it to the nasopharynx of the individual case. The condition of the drum membrane as to its pliability and the existence of adhesions should be ascertained before making a prognosis. In lithemic subjects, and in those nervous persons in whom there was a determination of blood to the head on slight excitement, special treatment was required.

Dr. S. MacCuen Smith of Philadelphia thought it was a mistake to put on heavy woolen underwear in winter, even in places as far north as Philadelphia. The general hygienic treatment outlined by the author was very useful. It had been his habit to make use of a hot shower or douche. There should be placed over the bath tub a frame made of gaspipe, and extending around the entire periphery of the bath tub at the height of six or eight feet. In this way a solid stream of hot water passes the full length of the spinal column. Hot water and cold water are used in quick alternation. By this means the person becomes less susceptible to changes in temperature. Physicians were generally inclined to overlook the value of respiration through the skin. He had not the slightest doubt that auto-intoxication arising from fecal accumulation was often a complication in these cases, and hence, he believed in flushing the colon every day for a few days, and then once a week. From two to four quarts should be used for each flushing.

Dr. George L. Richards said that he admired Dr. Snow's enthusiasm and wished that some of his cases with chronic catarrhal deafness were so situated that they could be placed in Dr. Snow's hands. Chronic catarrhal otitis media could exist with the nose and pharynx in perfectly normal condition. One great difficulty was that these patients did not seek relief until quite late. Professor Minot had recently announced that he had discovered glands in the Eustachian tubes, a point which might explain some of the intricacies of this subject.

Dr. E. B. Dench of New York agreed with Dr. Holmes as to the advisability of changing the outer clothing rather than the weight of the underwear. It had always seemed to him that silk was the worst fabric for underwear because it quickly became saturated with moisture, and the wearer was therefore exceedingly liable to be chilled upon the slightest exposure to cold. The linen mesh underwear was found very comfortable and useful by many catarrhal subjects. He believed that these cases of chronic catarrhal deafness could be very materially benefited. These patients should be told at the outset that cure was probably out of the question, and that improvement could only be effected by a long course of treatment. Discouraging as were these cases, his experience had been that in persons who would intelligently co-operate with the physician, the results were encouraging, and even in the worst cases the deafness would increase exceedingly slowly.

Dr. William L. Ballinger of Chicago said that he had been almost carried away with the eloquence and logic of the reader of the paper, and while the treatment must, for the most part, be that outlined in the paper, he could not entirely share Dr. Snow's enthusiasm or indorse his favorable prognosis. The reasons for failure were obvious from a study of the pathology. The disease was one in which the mucosa had become hypertrophied, and adhesive bands extended to the drum membrane or the ossicles. Moreover, the pathological conditions in the Eustachian tube complicated

the case. This tube contains lymphoid tissue, which by hypertrophy, often obstructs the Eustachian tube. Under such conditions hygienic treatment could not be expected to effect a cure.

Dr. John O. McReynolds of Dallas, Texas, indorsed what had been said by the previous speakers regarding underclothing, and heartily recommended the use of linen. The linen absorbs the moisture very much more rapidly than the other fabrics. The linen mesh had served him very well. It was exceedingly difficult in the South to induce ladies to take sufficient exercise because of the hot climate. About the only exercise they would indulge in was swimming.

Dr. Snow said he agreed fully with those who had spoken regarding the use of thinner underwear in winter than was commonly worn. He had been wearing linen mesh for three years, but in his cold climate he found a light woolen garment necessary for two or three of the winter months. With regard to the use of vapors, he wished to say that by injecting these interruptedly the mobility of the parts seemed to be increased by the manipulation. The auscultation tube should always be used in giving the treatments. Auto-intoxication appeared to have an important connection with many, but not all, of these cases. The sclerosed cases certainly appeared hopeless, but there were a great many more which could be benefited by appropriate treatment. Even in the more intractable cases he was becoming more hopeful as a result of giving daily treatments instead of at longer intervals as formerly.

**The Effect of Climate on Laryngeal Tuberculosis with Special Reference to High Altitudes.**—Dr. Robert M. Levy of Denver, Colo., read this paper. He said that comparatively few writers dwelt upon the climatic treatment of laryngeal tuberculosis. Those who had studied the subject superficially were almost unanimous in condemning high altitudes. Without preconceived notions he had conscientiously studied complete records of 205 cases, and now desired to present a preliminary communication on this topic. High altitudes alone were of comparatively little importance, pure air being the most essential element in the treatment of laryngeal as well as of pulmonary tuberculosis. Such air was found in sparsely settled high altitudes, and on the sea. The pathological picture of laryngeal tuberculosis was one of complete relaxation and anemia, not of inflammation. He had already called attention to the injurious effect of high altitude on acute tuberculosis, particularly of the pharynx. It was well known that 30 per cent. of all cases of pulmonary tuberculosis show sooner or later laryngeal involvement. In the cases developing both lung and throat lesion in Colorado, the throat lesion manifested itself 48 weeks later than in those originating elsewhere. Again, in cases developing the lung lesion elsewhere and the throat lesion in Colorado, the throat lesion occurred on an average 62.3 weeks later than in other regions.

Dr. Levy exhibited in connection with his paper an antitubercle screen and laryngoscopic chair.

Dr. Arthur G. Root of Albany said that he believed tuberculosis was the greatest social problem confronting the human race to-day, and it required a united effort on the part of the profession to solve this vital question. He knew of no locality within the United States to which every case of tuberculosis should be referred, though he knew of a number of places in this country to which certain cases should be referred. Intelligent treatment of tuberculosis would be productive of better results than could be possibly attained by any climate alone. It was generally admitted that laryngeal tuberculosis might be primary in a few instances. A case of tuberculosis showing fairly advanced pulmonary

lesions, and giving a history of repeated hemoptyses, should not be referred to a high altitude until this condition had improved. The dryness and purity of the air constituted the essential elements. It was safer for the person to gradually reach a high altitude so as to avoid excessive strain. Such climatic treatment combined with the other recognized methods would probably give the best results.

Dr. C. Dunbar Roy said he did not believe that tuberculosis was ever primary in the larynx. He knew of no treatment equal to a suitable climate. Altitude was not all. Dry air was the most important desideratum. Atlanta was situated at an elevation of 1,500 feet, but in that moist climate he had seen cases of tuberculosis get steadily worse, and only improve when sent out to the dry air of Arizona. By one deep, full inhalation of a strong solution of menthol in alcohol it was often possible to detect pulmonary tuberculosis in its incipency. A cooling sensation would be experienced in the lung not involved.

Dr. H. W. Loeb of St. Louis said that since hearing this paper he had changed the view which he had previously held, i. e., that it was better for cases of laryngeal tuberculosis to die at home than in Colorado. He had known cases of tuberculosis which had received every kind of treatment at home without improvement, improve rapidly after going to Arizona when receiving no treatment.

Dr. John O. McReynolds said that about two years ago he had resolved not to treat any more cases of laryngeal tuberculosis because, no matter how faithfully he treated them at home, he found they did better in a more suitable climate without any treatment whatever. He had succeeded in getting the best results in an altitude of about 3,000 feet on the plains of western Texas. San Antonio had an excellent reputation as a health resort for tuberculous patients, but recent statistics showed that so many persons had flocked there that the natives were contracting this disease. Experience showed that these patients did absolutely better when away from many other tuberculous patients and with only such treatment as they could carry out themselves.

Dr. G. L. Richards said that he met with many persons afflicted with laryngeal tuberculosis who could not leave home and must be treated to the best of our ability. He had already reported to cases which were helped and several apparently cured by simple local treatment such as the use of lactic acid and paramonochlorophenol.

Dr. Max A. Goldstein of St. Louis said that he had sent many patients with incipient pulmonary and laryngeal tuberculosis to the Western Divide, and they had returned home with decided improvement in the laryngeal condition. He had treated three cases of laryngeal tuberculosis in St. Louis, occurring in residents of Denver, and despite the treatment they had become worse. They all improved after having been back in Denver for about six months.

Dr. Sargent F. Snow said that altitude seemed to act well in a few cases because of the stimulation of the circulation and improvement in the general health. Like Dr. McReynolds he did not give his cases of laryngeal tuberculosis local treatment, but sent them to a moderate elevation, about 2,000 feet, and if they did not do well there they were sent to a higher altitude. Many of his cases had done well in the Catskill and Adirondack Mountains.

Dr. Levy, in closing, said that, of course, no one climate was suitable for all cases. As a rule, the cases developing the disease in Colorado were obliged to seek other climates for even temporary relief. The stage of



the disease and the patient's financial condition must always be taken into account before sending them to some special region for climatic treatment.

**Constitutional Manifestations Due to Infectious Processes in the Adenoid Structures of Children.**—

Dr. D. Braden Kyle of Philadelphia presented this paper. He said that this gland structure was known to be particularly susceptible to inflammation, and when this occurred there arose a high fever and other constitutional manifestations in children. With the slightest infection of this gland the constitutional symptoms were entirely out of proportion to the local changes. After the removal of the adenoid structure there was very little constitutional disturbance, even though slight local infection should occur. Children having repeated attacks of fever for which no very distinct cause could be found, should be examined as it would usually be found that adenoid hypertrophy was present. After recovery from an attack the adenoid structure should be removed by curetting, as this prevents the frequent recurrence of these febrile attacks and often makes the child less susceptible to the acute infectious diseases.

Dr. C. R. Holmes said that he had frequently met with these cases, and had found that they often suffered also from tubal catarrh. Sometimes the quantity of adenoid tissue had been so small that operation had not seemed necessary, yet on the removal of this small mass of tissue the tubal disorder had also disappeared.

Dr. Robert M. Levy said that with the exception of West he did not know of any one who had directed attention to this important matter. A case was mentioned as occurring in his own experience in which with only a moderate adenoid hypertrophy a fever of considerable duration was quickly controlled by washing out the nose, and a cure effected by removal of this adenoid tissue.

Dr. J. A. Stucky of Lexington, Ky., said that until a year or two ago he had been inclined to look upon the cases described in the paper as being dependent upon irritation of the alimentary canal rather than of trouble in the nasopharynx. Very frequently the patient was relieved by a mercurial purge, but he had met more recently with a number of recurrent cases, and the removal of a small mass of adenoid hypertrophy had effectually prevented further attack.

Dr. L. A. Coffin of New York referred to a case in which a child was thought to be suffering from malaria, but the usual antimalarial remedies failing to give relief, the nasopharynx was examined and pus discovered, apparently coming from the ethmoidal region. Adenoids had been previously removed from this child's nasopharynx. He was inclined to think that retention of pus at various points explained these cases.

Dr. C. Dunbar Roy insisted upon the use of the post-nasal mirror rather than the finger in the examination of the nasopharynx. Reference was made to a case in which the nasopharynx was occluded by a whitish membrane, causing great obstruction to breathing, but associated with no rise of temperature. Two cultures for the Klebs-Löffler bacillus were negative.

Dr. H. W. Loeb of St. Louis said that he had opposed the removal of adenoids unless they occluded the tube or interfered with nasal respiration. He had had under observation a child with attacks of otitis media recurring at intervals of a few weeks. There was a very small mass of adenoids, but since its removal there had been no more of these attacks.

Dr. C. E. Munger of Waterbury, Conn., said that he had been called to see a case of diphtheria because of the great difficulty in breathing. He had removed at once a very large mass of necrosed adenoids, with the result that there had been a quick amelioration of the

symptoms. This was the only time that he had operated during an attack of diphtheria.

Dr. Kyle, in closing, said that he often made an examination for adenoids with a nasal speculum and a small electric lamp in the mouth. Only about once in 150 times could a satisfactory examination be made in a child by means of the rhinoscopic mirror. He often made use of the finger, and could determine adenoid hypertrophy with it when this was impossible by either of the other methods.

**Report of a Case of Rapid Necrosis of the Temporal Bone Following Scarlet Fever.**—Dr. Francis R. Packard of Philadelphia was the author of this paper. The subject of the report was a child who had been in good health and had no disease of the ear prior to an attack of diphtheria followed by scarlet fever. Examination then showed a large sequestrum of bone plugging the external auditory canal. Streptococci and staphylococci were found in both ears, though in only one was there any extensive necrosis.

**Fibro-Papilloma of the Larynx with Unusual Movements.**—Dr. H. W. Loeb of St. Louis reported this case. A woman of thirty-eight years was the subject of the report. The history dated back to an attack of suffocation and dyspnea coming on during the night. Her voice was jerky, but there was nothing about the breathing to indicate laryngeal obstruction. Examination of the larynx showed apparently a tumor on the posterior wall of the infra-glottic portion of the larynx and trachea. As expiration began the tumor appeared, swung around and passed into the supra-glottic portion; then a second tumor appeared and surmounted the first tumor, almost completely hiding the glottis from view. During phonation, as a rule, only the first tumor succeeded in getting above the glottis. Three tumors were first removed by the forceps, and a fourth one at a later sitting. It was evident that the tumors had sprung from the inferior surface of the right vocal band, and that their mobility was due to the length of the pedicle.

Dr. George L. Richards said regarding the removal of intra-laryngeal tumors under local anesthesia that if one-quarter of a grain of morphine were given about half an hour before the operation it would greatly aid the operator, as the natural reflexes would be much less marked as a result and the local anesthesia intensified.

**Spasmodic Torticollis Following Adenotomy.**—Dr. John M. Ingersoll of Cleveland, O., presented this communication. He said that spasmodic torticollis following any operation was very rare. He had only found the record of one case occurring after adenotomy, and that had been reported by Dr. J. F. McKernon. His own case occurred in a well-nourished boy. The adenoid tissue was removed under cocaine anesthesia with a Gottstein curette. Two days later the boy returned with a typical torticollis. Three hours after the operation the boy had begun to complain of pain in the throat, and the face turned to the left. Examination showed no apparent injury to the surrounding structures. The disorder was looked upon as a neurosis, and he was treated by suggestion and massage. The torticollis was easily overcome and did not recur. The speaker was of the opinion that recovery would have taken place, though perhaps more slowly, without any treatment. Two cases of torticollis had been cured by Dr. A. J. Gillette by adenotomy.

Dr. Thomas H. Halsted of Syracuse said that he had met with an exactly similar case in which the torticollis had entirely disappeared after nine days without any treatment.

Dr. William R. Lincoln of Cleveland, O., recalled a

case occurring in a young girl, upon which he had operated for adenoids. The next day the muscles of the soft palate were found to be alternately relaxing and contracting, and inquiry elicited the fact that the child had suffered from chorea some time previously.

**Influenza as a Causative Factor in Inflammatory Disease of the Respiratory Tract.**—Dr. W. B. Shields of St. Louis read this paper. In his experience the sinuses most frequently involved were the frontal and ethmoidal, and the affection was sometimes associated with impairment of memory and lethargy. All cases of frontal sinusitis recover without operative interference unless there is preexisting polypoid hypertrophy or inflammation of the sinuses. The sphenoidal sinus was often affected, but recovery was usually spontaneous. The worst cases were those in which the ethmoidal cells were affected. The laryngitis of influenza was similar to that found in ordinary colds. The most distressing and dangerous cases were those in which influenza attacks the lungs, and this was particularly so in persons showing arteriosclerosis or chronic disease of the lungs. The tendency to tuberculous infection after influenza was well marked.

Dr. J. A. Stucky said that he had met with very few cases of influenza which had affected the larynx or the lower portions of the respiratory tract. He had noticed that violent frontal and occipital headache were out of all proportion to the constitutional disturbance. The nose would show perhaps only a slight swelling of the turbinate, and the temperature of the body was apt to be subnormal in the morning, rising to 100 or 101° F. later in the day. Small hemorrhagic spots were frequently found in the drum membrane of the ear. In three cases he had observed loss of smell and of memory following influenza. The majority of these cases could be relieved without surgical interference unless there had previously existed a polypoid degeneration or some other abnormal condition. Because of the prostrating effect of the disease the patient should be put to bed at once. The salicylates combined with the bromides had given him the best results in the constitutional treatment. He avoided the use of opium and of the coal tar products. To relieve the pain he used dry heat or a very weak saline solution of adrenalin, 1 to 8,000 or 12,000. The mistake was often made of using too strong a solution, thus causing excessive reaction. The pain was due to retention of secretion.

Dr. Shields objected to the use of adrenalin in any disease of the frontal sinuses in which there was acute inflammation. He preferred a weak solution of cocaine or of eucaine.

**Various Operative Procedures for the Relief of Chronic Suppurative Otitis Media and their Comparative Value.**—Dr. Edward B. Dench of New York read a paper upon this subject. In a consideration of the topic he confined his remarks to those cases of long standing, in which suppuration had persisted in spite of the ordinary measures for relief. In all cases the cause of the otorrhea was diseased bone within the tympanic cavity. In order to effect a permanent cure it was necessary that all diseased foci should be removed, and that any wound resulting from the surgical interference should be made to heal as quickly as possible in order that all regions previously diseased might be quickly covered with normal epithelium. In cases where the caries was confined either to the ossicles or to the ossicles and those parts of the tympanic cavity which were easily accessible through the external auditory meatus, excision of the ossicles and thorough curettement of the tympanic cavity through the external auditory canal constituted the ideal procedure, both on account of its simplicity and its safety. The author

showed both from its own statistics and those of other operators that the simple operation of removal of the ossicles and thorough curettement of the tympanum effected a cure in at least one-half of the cases operated upon and he advised this procedure, provided the cases submitted to the operation were carefully selected. In every case in which this operation was undertaken the author emphasized the necessity of a thorough and complete search for the incus. The reason for this was that this ossicle was most frequently the initial seat of intratympanic caries, and even though only a small fragment of the ossicle remained, this would be sufficient to keep up the suppuration. It should be remembered that the incus usually lies close to the margin of the tympanic ring. Occasionally it may be displaced into the lower part of the tympanic cavity by the operator in extracting the malleus. The speaker drew attention to the fact that while many operators considered the operation as finished with the removal of the ossicles, it was important to bear in mind that the operation was not complete until all diseased bone had been removed from the tympanum by the thorough use of the curette. Hemorrhage could usually be controlled by packing with sterile gauze strips or with gauze strips saturated in a sterile solution either of adrenalin chloride or of suprarenal extract. When there was extensive caries of the middle ear it was necessary to thoroughly expose the tympanum and the adjacent cells by the free removal of the osseous walls. When the mastoid cells were also involved, the mastoid antrum was entered as the initial step of the procedure, and the author advised this as the first step in practically every case in which the radical operation was indicated. His custom was to make the incision through the soft parts, five-sixteenths to one-half inch behind the line of the posterior auricular fold. The anterior flap was then dissected forward and the posterior margin of the bony meatus exposed. The author found that if he dissected out the fibrocartilaginous meatus from the bony canal this membranous tube would rupture posteriorly close to the level of the drum membrane. He favored entering the mastoid antrum through the cortex rather than following the course advised by Stacke of entering the mastoid antrum through the external auditory canal, as the initial procedure. The operator was next advised to follow the upper wall of the external meatus inward and remove the floor of the tympanic vault, thus throwing the tympanic vault and the atrium into one large cavity. The next step was to break down the bridge between the opening already made in the mastoid and the external auditory meatus. This procedure involved the removal of the posterior wall of the external auditory meatus. This should be done freely, the bridge being taken away completely down to the floor of the external auditory canal, as far inward as two-thirds the length of the canal; that is, the outer two-thirds of the posterior wall of the meatus should be removed completely and made continuous with the mastoid opening. It was considered unsafe to remove the posterior wall of the canal to this extent throughout its entire depth for fear of injuring either the facial nerve or the horizontal semicircular canal. If the bone was removed according to the plan already described, the horizontal semicircular canal and the aqueductus Fallopii, lying just below it, could be easily seen by the operator and all diseased bone remaining could be removed without injury to these structures. Where the mastoid cells were pneumatic, these were to be thoroughly explored until firm bone was reached. Hemorrhage sometimes constituted an obstacle to the operation, but could always be controlled by firmly packing the cavity with gauze. In some instances, the operation was prolonged



on account of persistent oozing from the bony structures, but in no case was hemorrhage so severe as to prevent the completion of the operation. The middle ear and mastoid having been thoroughly cleared out, it was next necessary to provide an epithelial lining for the extensive bony cavity thus formed. Such a cutaneous lining was obtained by forming flaps from the posterior wall of the fibrocartilaginous meatus and from the concha. The exact form of flap to be employed must vary with each individual case. The writer had found that in most cases it was wise not to limit these flaps to the fibrocartilaginous meatus, but to take some tissue from the concha as well in order to secure a larger amount of cutaneous covering for the exposed bone. He had also found that it was of material advantage, in most cases, to dissect out the fibrocartilaginous tissue from these flaps, so that the integument might be applied more perfectly to the bony walls of the cavity. There was danger in this operation of injuring the facial nerve, the horizontal semicircular canal, the labyrinth and the lateral sinus. Any of these accidents could usually be avoided by care on the part of the operator. Comparing the results of these two operations upon the function of the organ, the writer stated that the surgeon could generally promise that the hearing would probably not be worse after the simpler operation of removal of the ossicles, but would, in the majority of cases, be improved. The effect of the radical operation upon the hearing was somewhat uncertain. In many cases it remained the same as before the operation; in a few it was made worse and in others the hearing was improved. It was, therefore, wise prior to the performance of the radical operation, to caution the patient that the function of audition might be greatly impaired as the result of the operative procedure.

**Chronic Suppurative Otitis Media. When Should Radical Surgery be Employed in its Treatment, and of What Should This Consist?**—Dr. George L. Richards of Fall River, Mass., presented this paper. Out of 64 cases of brain and cerebellar abscess he had found 82 per cent. to be the result of long standing chronic purulent otitis media. Out of 9,000 autopsies at Guy's Hospital the cause of death in two-thirds of 1 per cent. was chronic suppurative otitis media. This small proportion, however, was no argument for shirking the duty of explaining to the patient that he was carrying around in his head what was equivalent to a charge of dynamite. According to his experience hearing was generally improved by operation. Ossiculectomy was advised by many aurists as the first operation to be done. Distressing nausea and vertigo often followed this operation, and facial nerve paralysis, lasting several months, was sometimes observed. He therefore preferred in most instances to do the radical operation. It was essential to have good illumination for this operation, preferably that obtained from the forehead electric light. The tympanic opening of Eustachian tube should not be overlooked in the process of curetting the cavity. Most of his patients had left the hospital in less than two weeks after the operation, and in another week had returned to work. The after-treatment, though simple, might last from six weeks to six months.

Dr. S. MacCuen Smith of Philadelphia advocated the early recognition and treatment of acute suppurative disease of the ear in order to prevent many of these cases from becoming chronic. A very large percentage of these cases could be cured if proper treatment were early instituted. Early incision of the membrana tympani could do no harm, and would often arrest the process before suppuration had begun. His experience had been that in a rather large percentage of cases in

which the tympanic operation had been done the radical operation would be subsequently demanded. He preferred the Schwarze-Stacke operation because of the diminished danger to important contiguous structures. The lateral sinus was certainly more forward in these chronic cases, as pointed out in Dr. Richards' paper. The effect on the hearing was of slight and secondary importance.

Dr. C. R. Holmes reported another case of facial paralysis coming on after ossiculectomy and curetting of the upper and posterior wall. Complete paralysis developed on the seventh day and disappeared in about two weeks. He had never been in favor of the Stacke operation because of the liability of wounding important structures. A study of a great many temporal bones and taking plenty of time in operating would minimize these dangers. He had frequently exposed the dura and the lateral sinus and did not think there was any danger in so doing. He preferred to open up and see what he was doing so as to effect a permanent cure. He believed that there should be 100 per cent. of cures after one or more radical operations, barring intracranial complications. He was satisfied that Dr. Dench's method of using the incus hook was better than that taught him by Schwarze, and he had proved by actual experiment that by the latter method there was danger of dislocating the incus into the antrum. He preferred to do the plain Schwarze-Stacke operation, and the actual time of operation with him varied from 20 minutes to an hour and a half. If one cut freely into the cartilage one was likely to have perichondritis result with consequent shrinkage of the ear. In the majority of cases he left the wound open at first, allowing it to close in the second or third week. In young persons it could sometimes be closed at once. In the vast majority of cases the hearing had been better or not injured. Chronic suppuration even of a low grade was unquestionably deleterious to the general health, as was shown by a slight rise of temperature and a sallow complexion. The mouth of the tube should be most thoroughly, almost severely, curetted. According to his experience the after-treatment was very important and it seemed impossible to train the average hospital interne in a short time to dress these wounds properly.

Dr. James F. McCaw of Watertown, N. Y., asked what was the experience of the members with ossiculectomy as to the formation of a new tympanic membrane, and what had been the effect on audition. This question was prompted by personal experience. Subsequent to this new membrane formation great improvement in hearing had been afforded by the use of the Valsalva method. Immediately after the operation the hearing had been enormously augmented. The formation of the tympanic membrane had required about two years.

Dr. M. D. Lederman of New York said that he thought all would agree that the radical operation would be the future treatment of chronic, suppurative otitis media, but the dangers must be taken into consideration. At the last meeting of the society he had reported a case in which there had been a malposition of the lateral sinus. In using the chisel heroically one was apt to make too rapid progress. Where there was mastoid involvement there was danger of sinus thrombosis from the opening of a sinus previously healthy. He knew of three such cases; hence the necessity for the cautious removal of the diseased tissue around the sinus. He recalled a case in which reformation of the drum took place in four weeks, the case being one of long standing suppuration. At that time the patient complained of pain and, fearing retention of secretion, the membrane was removed and also some granulation

tissue found in the attic. This caused severe vertigo and vomiting, which necessitated the patient's remaining in his office for two hours. One of his cases had been compelled to stay in bed for two weeks because of severe vertigo and projectile vomiting. He would again insist upon the great importance of thoroughly curing the Eustachian tube.

Dr. Robert M. Levy asked what was the average length of time the discharge lasted after the two flap methods described; also in those instances in which the posterior wound was allowed to remain open for three or four weeks, what was the after-treatment of this portion.

Dr. Dench said that the drum membrane sometimes reformed, and it seemed to make the hearing worse. He did not think the special flap method required had any effect on the time the discharge lasted; he ordinarily expected this time to be from six weeks to two months.

**A Nasopharyngeal Tumor.**—Dr. G. Hudson Makuen of Philadelphia reported this case and exhibited the patient. He was a youth of eighteen years having a tumor attached to the posterior third of the left nostril and to the vault of the pharynx. Both nostrils were practically occluded. The tumor filled the vault of the pharynx. A small section of the growth had been examined by Dr. David Riesman, who reported it to be an edematous fibromatous growth characterized by stratified epithelium. On July 7, 1901, under ether, a portion of the growth had been removed with a snare and No. 10 wire. The tumor was very vascular and the operation was followed by considerable hemorrhage. This specimen was examined by Dr. W. M. L. Coplin and thought to be granulomatous. Nothing had been done since that time and the patient had become apathetic in regard to it. There had not been much change in the case except the appearance of an infiltration of the muscles of the cheek. Antisyphilitic remedies had been employed without effect.

Dr. H. W. Loeb said he did not place overmuch reliance on the diagnosis by the microscope of this class of cases. He would suggest that in this particular case electrolysis be used. He had seen marked improvement in three such cases, not only in a reduction of the vascularity but in the size of the growth, and others had reported good results. One of his cases had been kept under observation about 10 years. He did not like the infiltration in the cheek, because in one of his cases that proved to be malignant it had acted in a similar manner; the mass proved to be an extension of the growth around the posterior surface of the superior maxilla. In one case, thought to be a fibrosarcoma with elastic fibers, the tumor grew from the vicinity of the Eustachian tube. The course of the case did not point to its being a sarcoma.

Dr. Ewing W. Day of Pittsburg said that he had unfortunately met with a number of such cases. One of them was a very extensive fibroma. The patient would not consent to removal of the superior maxilla, so he had made the incision as for that operation except not going under the eye. He had then cut into the maxillary antrum and cut away the inner wall of the antrum, leaving the nostril attached to the outer border of the bone. When the antrum and the nasal cavity were thus thrown into one cavity he was able to reach the root of the growth, and remove it without producing much hemorrhage. He had been surprised at the wide field of operation thus obtained. This operation had been done three years ago, and there had been no recurrence. If he had to do the operation again he would leave only a ridge to anchor the nose to, and so prevent the ballooning that now takes place in this patient when blowing his nose.

Dr. J. A. Stucky said he believed that if this infiltration of the nose were left untreated it would require an external operation. From his own experience he felt that it was not possible to make a snare that would remove the tumor from Dr. Makuen's patient. Mention was made of an exceedingly trying case of the kind that had fallen to his own lot.

Dr. J. O. McReynolds, Dallas, Texas, advised using a cold wire snare and holding it in position while an assistant tightened the snare as much as possible. Having made a pedicle in this way, the galvanocautery loop should be thrown around the growth. This method would allow some of these growths to be removed that would ordinarily break snare after snare. A case was cited in which the superficial layers of the growth indicated only fibroma, but examination of the deeper ones showed sarcomatous elements.

Dr. M. D. Lederman of New York said that he had some experience with Dr. Dawbarn's method of operating in order to starve out these growths in the rhinopharynx, and he would suggest that Dr. Makuen consider this method in connection with his case. A case was referred to in which the patient had been seen five years after the Dawbarn operation and there had been at that time no return of the growth.

Dr. Edward B. Dench remarked that Dawbarn's method embraced ligation of the external carotids and their branches, with complete excision of the ligated vessels.

Dr. G. H. Makuen said that it had been impossible to get the cold wire snare around the tumor because it extended so far down on the posterior pharyngeal wall. The patient and his family would probably not consent to any other radical operation.

**Tuberculosis of the Middle Ear with Report of Cases.**—Dr. Max A. Goldstein of St. Louis was the author of this paper. He expressed the conviction that primary tubercular infection of the ear was not only possible but more frequent than generally believed. In substantiation of this a case was reported in which careful physical examination showed no tuberculosis elsewhere, yet subsequently an acute miliary tuberculosis developed in the lungs and was proved to exist at autopsy. It was thought to be secondary to the tuberculous process in the ear. Altogether five cases were reported, which were believed to be examples of primary tuberculosis of the middle ear. There was no family history of tuberculosis in these cases.

Dr. Robert M. Levy said that if we more often resorted to such microscopical examinations the literature of this class of cases would probably be extended. While not questioning the diagnosis at all he would suggest that in some cases in which tubercle bacilli were found there was the possibility of the extraneous presence of the tubercle bacilli.

Dr. E. B. Dench also expressed the opinion that this method of systematic examination, if extended, would probably show evidence of tuberculosis in very many more cases. This had been the experience in joint tuberculosis. The paper was certainly most instructive and suggestive.

Dr. J. O. McReynolds reported the case of a child of six years who had been brought to him some years ago with chronic disease of the middle ear. He did a radical operation and completely cured the local condition. Two years later the patient developed disease of the spine and hip joint, and died of tubercular meningitis. He looked upon this case as an example of primary tuberculosis of the middle ear. He would like to know if there was any scientific ground for the popular notion that the healing of a tubercular process in one part of the body would result in its breaking out in another part.



Dr. H. W. Loeb said that tuberculin should be used in these cases with a view to determining the presence of tuberculosis elsewhere. He did not think a reaction would be obtained from the process in the ear.

Dr. G. L. Richards asked for the experience of Dr. Levy with regard to the tuberculin test.

Dr. Levy said that in very incipient cases of tuberculosis the tuberculin had often cleared up the diagnosis, but he had never used it in connection with purely local tuberculosis.

Dr. William L. Ballenger of Chicago said that he had had no experience with the tuberculin test in local processes, but he had observed its action in incipient tuberculosis. He mentioned two cases in which experts in physical diagnosis had found no pulmonary tuberculosis, and yet the appearance of the larynx suggested tuberculosis, and the application of the tuberculin test produced the characteristic reaction. He saw no reason why tuberculosis should not be primary in the larynx and in the middle ear.

Dr. John A. Thompson of Cincinnati said that it was claimed that tuberculosis is always first a disease of the lymphatic glands, either of Waldeyer's ring or of the intestine, and that tuberculosis never occurs in the lungs until the lymphatics at the root of the lungs are first involved. This, he thought, would enable one to make a diagnosis of tuberculosis before there were any physical signs in the lungs. In cases of obstinate catarrhal laryngitis with an evening rise of temperature, even without physical signs, he favored making the diagnosis of incipient tuberculosis and sending the patient to a proper climate. He had known several such cases to subsequently develop pulmonary tuberculosis.

Dr. Goldstein said that the remark made by Dr. Levy simply corroborated his own view with regard to the possibility of local tubercular infection.

(To be continued.)

## BYWAYS OF MEDICAL LITERATURE.—VII.

### ANIMALS' RIGHTS.

The following story which is told in a recently issued volume "Varieties of Religious Experience, A Study in Human Nature," by William James, Professor of Philosophy at Harvard, will be of interest to medical men, as showing how far the tendency to regard animals' rights too precisely may be carried by those who once begin to yield to undue sentimentality in the matter. Towianski, an eminent Polish mystic and patriot, was discovered one day by a friend permitting a large dog to jump up on him and exhibit various manifestations of its pleasure at meeting him. As the rain was pouring down and Towianski was being delayed in the street and as the dog was all muddy, and was making his but newly made acquaintance like unto himself, the friend protested. Towianski immediately reassured him, however, and continued to welcome the manifestations of friendship. "This dog whom I now meet for the first time," he said, "shows good fellow feeling and great joy in my recognition and acceptance of his greeting. Were I to drive him off I should wound his feelings and by so doing inflict upon him a moral wrong. This would be an offense not only to him, but to all the spirits of the other world on a level with him. The damage he does my coat is as nothing compared to the wrong I would inflict on him, if I displayed indifference to the manifestations of his friendship."

The example of the good mystic is commended to all our antivivisectionist friends as a model on which their

own conduct towards animals can be regulated. When rights and duties become thus exaggerated by sentiment there is no knowing where the end is to be.

### AS OTHERS SEE US.

It is said to be a precious gift to be able to see ourselves as others see us. In default of this rare privilege probably there is no better way to get at some of our faults than to see our pictures as the dramatist paints us. Usually the French dramatists have been ready enough to satirize the physician, and since Molière's time it has been a tradition of the French theater that the medical man makes reasonably good dramatic material at which audiences are ever ready to laugh. The Frenchman, who at the present time is attracting most attention by his satiric comedies, M. Eugene Brieux, certainly seems to find physicians worthy of his satire, for in a number of his successful comedies physicians are introduced and nearly always in a humorous vein that may be expected to prove laugh-provoking even for physicians themselves. M. Brieux has obtained great vogue in very recent years, has had the privilege of being acted in every large city in Europe almost, and at least one of his plays has been put on the stage here in New York. It seems worth while then to give an extract from his play "Evasion," which we feel sure most medical men can enjoy quite as cordially and with perhaps better understanding than any of the audiences that have listened to M. Brieux's productions. The passage we quote is in the opening scene of the comedy and is calculated to show very well M. Brieux's satiric methods. We are indebted for the excerpt to the July number of the Atlantic Monthly in which there is an excellent critical article on Brieux's work.

Dr. La Belleuse asks the advice of his famous chief, Dr. Berry as to the cases which are worrying him.

La Belleuse—There is one case that I can't succeed in relieving.

The Doctor—That will happen.

La Bell.—Of course, but he wants very much to go to Lourdes.

The Doc.—Let him go.

La Bell. (dismayed)—You don't mean that? What if he should be cured?

The Doc.—You can always find a scientific explanation.

La Bell.—Suggestion?

The Doc.—Certainly; it answers for everything. Anything else?

La Bell.—There is Probard, that patient of whom I spoke to you. He can't last more than a week.

The Doc.—Call a colleague in consultation. That will divide the responsibility.

La Bell.—But Probard is almost a celebrity.

The Doc.—Cail in two.

La Bell.—Yes. At the hospital, Number Four in the St. Theresa room is still in the same condition.

The Doc.—Have you tried everything?

La Bell.—Everything.

The Doc.—Even doing nothing?

La Bell.—Even doing nothing. Not one of them can tell what is the matter with her.

The Doc. (after a sigh)—We shan't know till the autopsy. Let us wait.

La Bell.—Stopping all treatment?

The Doc.—No. One must never seem to lose interest in a case. That would be a mistake. A regrettable mistake. Do, no matter what, but do something. That is all?

La Bell (consulting his memoranda)—I don't see anything more.

Such satire is not calculated to do harm but rather to bring out the fact that the practice of medicine is, after all, the pursuit of an art, not a science, and that consequently there must be elements of shortcoming some of them personal, some due to inherent difficulties and all requiring patience and tact until the light of science shall be clearer.

#### INCOMES OF GREAT PHYSICIANS.

The incomes made by famous physicians are always a matter of the greatest interest, not only to the profession itself but to the public at large. Notwithstanding the fact that larger fees are asked and given nowadays than formerly it is probable that very few physicians or surgeons are able to earn larger incomes than some of the distinguished men of immediately preceding generations. One of the English popular weekly papers gave recently a list of English physicians of note, most of them more than quarter of a century dead, whose incomes were considerably above \$50,000 a year. It is surprising to find that many of them made very little money during the early part of their careers and yet obtained the material rewards of medicine in profusion before they had been 20 years in practice. It was our own Osler who said that during the first ten years a practitioner in a large city could scarcely expect to obtain more than bread and water with perhaps bread and butter during the second ten years, and the cakes and ale later. The number of physicians practising at the present time makes the certainty of small income at the beginning greater than ever and diminishes very materially the chances of a very large income later on in life. The prospective rewards of medicine, as they were, however, may very well be gleaned from the list, so we give it:

An income of £20,000 (\$100,000) a year is by no means uncommon for a great surgeon. Sir Astley Cooper, who in his first year earned five guineas and in his second £26, made in one single year, when he had got to the height of his fame, £21,000, and a general average for several years of £15,000. He once received a fee of 1,000 guineas—a little more than \$5,000.

This fee, however, was left far behind by a record sum of £20,000 paid to Dr. Dimsdale, a Hertfordshire physician, for inoculating the Empress Catherine of Russia and her son. Besides this fee, a life pension of £500 a year was granted to the lucky man. Sir Morell Mackenzie received £12,000 for his attendance on the Emperor Frederick. Mackenzie was famous alike for his high fees and for his generosity in treating people for nothing. Those who could pay had to pay, and pay well, but artists and literary people, and any whose purses were small, he charged nothing.

There is no more striking contrast than between the early and later earnings of a great doctor. Sir James Paget, whose life, recently published, attracted so much attention, was an instance of this. During the first few years he scarce earned enough to buy bread. For seven years his largest income was £23 13s. Until he had been a surgeon for sixteen years it never exceeded £100. After 1851 his income rose steadily till it reached £10,000 a year. Then he gave up operating, and it fell at once to £7,000, and then slowly decreased.

Sir James Simpson earned nothing at first. Yet when he was thirty the hotels were filled with his patients, and his practice was worth thousands a year to them.

Sir Erasmus Wilson, the famous skin specialist, was so well off that he could spend £10,000 on a hobby like bringing over Cleopatra's Needle to England, and £30,000 on a charity like the new wing and chapel for the Sea Bathing Infirmary at Margate. Sir Erasmus Wilson died in 1884, leaving £180,000.

Sir Andrew Clark is said to have seen 10,000 patients annually, and in his time had practically every famous man under him. He always took what was offered as a fee, sometimes £500, sometimes two guineas. He is said to have once received £5,000 for going to a patient at Cannes from London. He was Mr. Gladstone's physician.

Great doctors have a recognized fee of a guinea (\$5.25) a mile for traveling to see patients outside their usual radius. One of the present King's late physicians, when the King was Prince of Wales, received for four weeks' attendance at Sandringham, when the Prince had typhoid fever, a baronetcy and £10,000.

#### THE PHYSICIAN'S GARDEN.

A renewed interest is being taken in gardens. We have had the Commuter's Garden and various forms of country gardens besides Elizabeth and her German garden, so that it would seem as though we might with propriety speak of the physician's garden. Many a country physician must have the opportunity to have a certain number of plants for home adornment. An article in the July number of Lippincott's on "A Garden of Native Plants" shows that some ornamental varieties of domestic plants that grow excellently in most northern localities may very well have a significance beyond their decorative effect when planted in the physician's garden. The viburnum opulus, for instance, is well known in medicine and the bush from which it comes, better known in country neighborhoods as high cranberry bush, is a shrub of very easy culture. It is a near relative of the viburnum, more commonly known as snowball or guelder rose. The native variety is quite as attractive as regards manner of growth and foliage. In the fall it is far more attractive, for the leaves change from green to pale yellow and red. The most attractive feature of this plant is its great clusters of bright crimson berries which generally remain on the branches all winter. There is no more suitable shrub for the winter decoration of the lawn. The berries are quite as brilliantly effective as any flowers could be and especially so when the chief color in the landscape is white, the contrast with which throws them into vivid relief.

Golden rod is another plant occasionally used in medicine which makes an excellent garden plant. To bring out its beauty fully, it should be associated with the aster which is almost everywhere found growing alongside it in nature. The pale rosy violet and lavender of the aster heighten the yellow of the golden rod and make it truly golden in the richness of its depth and tone. If the plants are simply given a place in the garden they will take care of themselves. Hamamelis, or witch hazel, is a native shrub which has many and peculiar attractions that make it suitable for gardens. It does not require much care. The sweet pepper bush is worthy of a place in any collection. Certain of the weeds that are native to this country and are occasionally used for medicinal purposes, as the asclepias, or milk weed, whose scientific name comes from the great heathen patron of medicine may prove a very ornate plant if used for the borders of gardens. The writer in Lippincott's says that for borders they are far superior to nine-tenths of the plants we import for this purpose. It would seem that the physician might well make his garden in a way an interesting symbol of his profession at the same time that it proves a model for neighbors in the matter of the encouragement of certain native plants. All the shrubs and plants mentioned can be removed safely in spring and it will be found that all native plants take on strength and luxuriance of growth under domestication, such as they never exhibit when growing wild.